



Component Products

Catalog 104A



“The Supplier”

With electronic technology changing constantly, you need a dependable manufacturer that can make the parts you need. Whether for standard catalog components, modified existing parts or fully custom items, Johnson Component Products offer you the advantages and flexibility of vertical integration at a very high level.

Our design staff is dedicated to ongoing research and development, pioneering new product technology and manufacturing techniques that meet the dual challenge of new design and production technologies and the demand for reduced component costs. For circuit hardware, interconnect devices, variable capacitors, hybrid circuits or any product that requires production as well as design expertise, this dedication can be put to work for you to help you design components into your product that improve quality, reduce product cost or increase production output.

PRODUCT STANDARDS

All E.F. Johnson products conform to our own strict quality control standards as well as applicable industry quality standards and military specifications. All products are available as described in individual product ratings, charts and specification drawings as published in the catalog.

STATEMENT OF WARRANTY

E.F. Johnson Company products are guaranteed to be free from defects in materials and workmanship. However, our liability shall be limited to replacement of defective materials, if we are notified within a reasonable time after delivery.

NOTE

Seller's and manufacturer's only obligation shall be to replace such quantity of product proven to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use, the products. Before using, user shall determine the suitability of the product for his intended use, and user assumes all risk and liability whatsoever in connection therewith. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of seller and manufacturer.

SAFETY ADVISORY

Avoid applications wherein hazardous voltages are applied to user contacted components. Voltage ratings relate to reliable component operation, not to safe application. Label your product carefully with warnings, where appropriate.

Definitions

Dielectric Withstanding Voltage (Breakdown Voltage)

A measure of the ability to withstand momentary overpotential under specified conditions without apparent damage or flashover, per EFJ 003-6000-500.

Working Voltage (Rated Voltage)

A measure of the ability to meet relevant leakage specifications during sustained voltage application under specified conditions, per ANSI C39.5.

CANCELLATIONS/TERMINATIONS/RETURNS

All cancellations, terminations or changes of acknowledged orders must be in writing and have written approval from Johnson. Returns must be authorized by, and are subject to, inspection by Johnson Component Products. Returns and cancellations are subject to charges determined by Johnson Component Products. All claims for shortages must be made within 30 days of shipment.

Prices and specifications are subject to change without notice by Johnson Component Products.

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HARDWARE

RF
CONNECTORS

TEST LEADS
PATCH CORDS

SPACERS

CAPACITORS

TUBE
SOCKETS

Johnson can meet your hardware specifications for design, delivery, and quality. Our network of more than 200 distributors deliver products promptly from our comprehensive product line and help fulfill your prototype needs. As a manufacturer, we can custom design and deliver any hardware you need.

ORDERING INFORMATION

For a numerical index of the complete product line, refer to the end of this catalog, starting on page 113.

Each product listing in this section includes detailed drawings and part numbering information. Material, mechanical, electrical and environmental specifications are listed for each item.

TO ORDER

When the part numbers you require have been identified, call Component Sales at 1-800-247-8256 or write Component Sales, E.F. Johnson Component Products, P.O. Box 59089, Minneapolis, MN 55459-0089. We will identify your local E.F. Johnson distributor for you who can very likely fill your order from his inventory.

SPECIALS

For non-standard items, special applications or design engineering needs, call the factory at 1-800-247-8256 or write Component Marketing Manager. Our experienced design engineering staff can customize any part or design a new part to meet your requirements. Complete model shop facilities are available for your prototyping needs.

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Insulated Miniature

SPECIFICATIONS

Contact: Copper aluminum alloy*

Finish: Silver

Body: Nylon 66 per ASTM D4066

Std. Colors: Ten per FED-STD-595

RATINGS

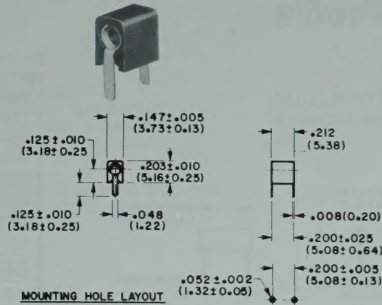
Current: 5 amps

Breakdown Voltage: 2100 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Adjacent Jack C: 1 pF maximum at 1 MHz

* A new Johnson material development that, for this application, meets or exceeds beryllium copper.



inches (millimeters)

For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Contact protected from flux and solder
- Probe access from both ends
- Nylon UL approved for self extinguishing

SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-1101-001	White	105-1107-001	Yellow
105-1102-001	Red	105-1108-001	Brown
105-1103-001	Black	105-1110-001	Blue
105-1104-001	Green	105-1112-001	Violet
105-1106-001	Orange	105-1113-001	Gray

Insulated Standard

SPECIFICATIONS

Contact: Copper aluminum alloy*

Finish: Gold or Silver

Body: Nylon 66 per ASTM D4066

Std. Colors: Six or ten per FED-STD-595

RATINGS

Current: 5 amps

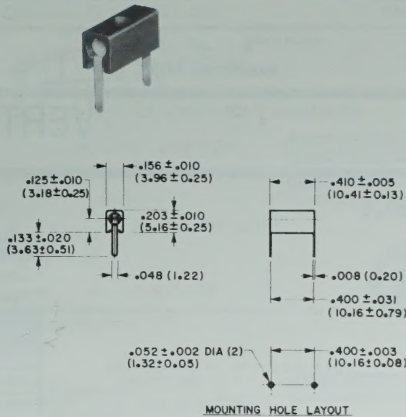
Breakdown Voltage: 2100 Vrms minimum†

Contact Resistance: Gold: 0.005 ohm maximum

Silver: 0.010 ohms maximum

Adjacent Jack C: 1 pF maximum at 1 MHz

* A new Johnson material development that, for this application, meets or exceeds beryllium copper.



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Contact protected from flux and solder
- Probe access from both ends or top
- Nylon UL approved for self extinguishing

GOLD PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-0751-150	White	105-0754-150	Green
105-0752-150	Red	105-0757-150	Yellow
105-0753-150	Black	105-0760-150	Blue
SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-0751-001	White	105-0757-001	Yellow
105-0752-001	Red	105-0758-001	Brown
105-0753-001	Black	105-0760-001	Blue
105-0754-001	Green	105-0762-001	Violet
105-0756-001	Orange	105-0763-001	Gray

Insulated Ruggedized

SPECIFICATIONS

Contact: Copper aluminum alloy*

Finish: Gold or Silver

Body: Nylon 66 per ASTM D4066

Std. Colors: Six or ten per FED-STD-595

RATINGS

Current: 5 amps

Breakdown Voltage: 2100 Vrms minimum†

Contact Resistance: Gold: 0.005 ohms maximum

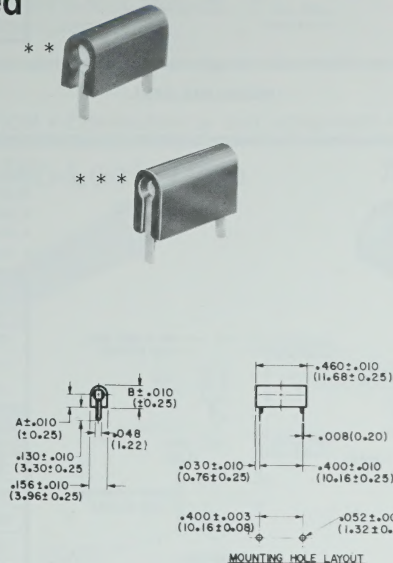
Silver: 0.010 ohms maximum

Adjacent Jack C: 1 pF maximum at 1 MHz

* A new Johnson material development that, for this application, meets or exceeds beryllium copper.

** .130" (3.30mm) Dimension A
.220" (5.60mm) Dimension B

*** .203" (5.15mm) Dimension A
.293" (7.45mm) Dimension B



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Contact protected from flux and solder
- Probe access from both ends
- Nylon UL approved for self extinguishing

GOLD PLATING**			
PART NO.	COLOR	PART NO.	COLOR
105-2201-105	White	105-2207-105	Yellow
105-2202-105	Red	105-2208-105	Brown
105-2203-105	Black	105-2210-105	Blue
105-2204-105	Green	105-2212-105	Violet
105-2206-105	Orange	105-2213-105	Gray
SILVER PLATING*			
PART NO.	COLOR	PART NO.	COLOR
105-2201-101	White	105-2207-101	Yellow
105-2202-101	Red	105-2208-101	Brown
105-2203-101	Black	105-2210-101	Blue
105-2204-101	Green	105-2212-101	Violet
105-2206-101	Orange	105-2213-101	Gray
GOLD PLATING***			
PART NO.	COLOR	PART NO.	COLOR
105-2201-150	White	105-2204-150	Green
105-2202-150	Red	105-2207-150	Yellow
105-2203-150	Black	105-2210-150	Blue

Contact: For 105-2201-150 series, beryllium copper per QQ-C-533.

Insulated Ruggedized Low Profile

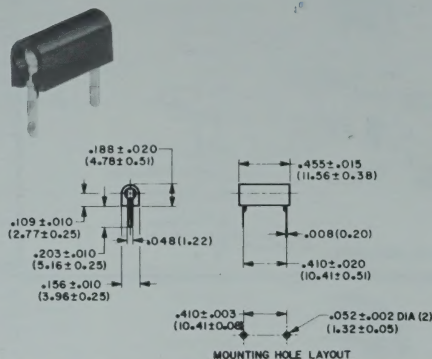
SPECIFICATIONS

Contact: Copper aluminum alloy*
Finish: Gold
Body: Nylon 66 per ASTM D4066
Std. Colors: Six per FED-STD-595

RATINGS

Current: 5 amps
Breakdown Voltage: 2100 Vrms minimum†
Contact Resistance: Gold: 0.005 ohms maximum
Silver: 0.010 ohms maximum
Adjacent Jack C: 1 pF maximum at 1 MHz

* A new Johnson material development that, for this application, meets or exceeds beryllium copper.



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Contact protected from flux and solder
- Probe access from both ends
- Mounts in PC board in .052" dia. holes on .410" centers
- Nylon UL approved for self extinguishing

GOLD PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-4201-105	White	105-4204-105	Green
105-4202-105	Red	105-4207-105	Yellow
105-4203-105	Black	105-4210-105	Blue

VERTICAL TEST JACKS

APPLICATION • Test Points

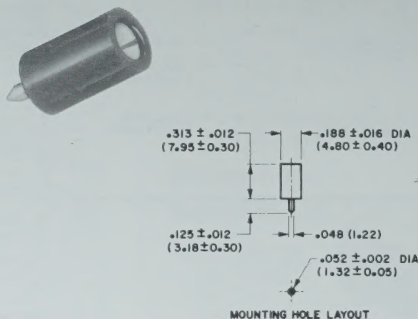
Insulated: Machined Contact

SPECIFICATIONS

Contact: Beryllium copper per QQ-C-530
Finish: Silver
Body: Nylon 66 per ASTM D4066
Std. Colors: Ten per FED-STD-595

RATINGS

Current: 5 amps
Breakdown Voltage: 3500 Vrms minimum†
Contact Resistance: 0.010 ohms maximum
Adjacent Jack C: 1 pF maximum at 1 MHz



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Contact protected from flux and solder
- Nylon UL approved for self extinguishing

SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-0851-001	White	105-0857-001	Yellow
105-0852-001	Red	105-0858-001	Brown
105-0853-001	Black	105-0860-001	Blue
105-0854-001	Green	105-0862-001	Violet
105-0856-001	Orange	105-0863-001	Gray

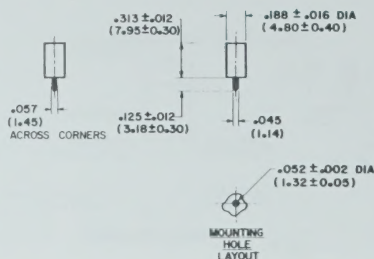
Insulated: Formed Contact

SPECIFICATIONS

Contact: Beryllium copper per QQ-C-533
Finish: Gold or Silver
Body: Nylon 66 per ASTM D4066
Std. Colors: Six or ten per FED-STD-595

RATINGS

Current: 5 amps
Breakdown Voltage: 3500 Vrms minimum†
Contact Resistance: Gold: 0.005 ohms maximum
Silver: 0.010 ohms maximum
Adjacent Jack C: 1 pF maximum at 1 MHz



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Spring loaded
- Contact protected from flux and solder
- Nylon UL approved for self extinguishing

GOLD PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-2201-205	White	105-2204-205	Green
105-2202-205	Red	105-2207-205	Yellow
105-2203-205	Black	105-2210-205	Blue
SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-2201-201	White	105-2207-201	Yellow
105-2202-201	Red	105-2208-201	Brown
105-2203-201	Black	105-2210-201	Blue
105-2204-201	Green	105-2212-201	Violet
105-2206-201	Orange	105-2213-201	Gray

inches (millimeters)

ELECTRICAL RATINGS

Impedance: 29 ohms
Frequency Range: 0 - 2 GHz
Working Voltage: 300 Vrms
Dielectric Withstanding Voltage: 2000 VDC
Contact Resistance: Center contact: 6 milliohms
 Outer conductor: 2.5 milliohms

MECHANICAL RATINGS

Insertion Force: Inner conductor: 32 oz. max. 2 oz. min.
 Outer conductor: 48 oz. max. 6 oz. min.

Durability: 250 cycles

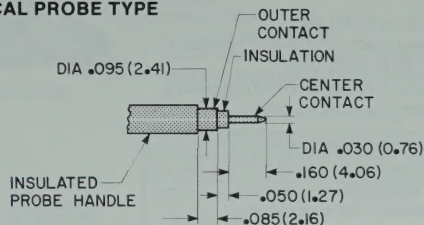
ENVIRONMENTAL RATINGS

Temperature Range: -65° C to +85° C
Corrosion: Salt spray, 24 hours
Shock: Method 213, Test Condition B, MIL-STD-202
Vibration: Method 204, Test Condition B, MIL-STD-202

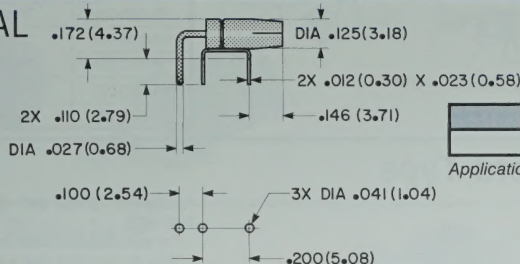
MATERIAL SPECIFICATIONS

Contact: Beryllium copper per QQ-C-533/530
Insulator Material: TFE Fluorocarbon per L-P-403
Finish: Center Contact and Body: Bright Tin

SHIELDED TEST JACK INTERFACE — TYPICAL PROBE TYPE



HORIZONTAL

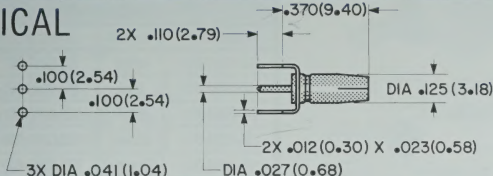


BRIGHT TIN PLATED

129-0701-301

Application detail Page 68

VERTICAL



BRIGHT TIN PLATED

129-0701-201

Application detail Page 68

TIP JACKS

APPLICATION • Connection to test equipment • Power supplies • Electrical instruments

Insulated Standard: Rib-Loc® Type

SPECIFICATIONS

Contact: Brass body per QQ-B-626D with wrap around
 beryllium copper spring per QQ-C-533

Finish: Silver

Body: Nylon 66 per ASTM D4066

Std. Colors: Ten per FED-STD-595

Panel Thickness: Up to .375" (9.05mm)

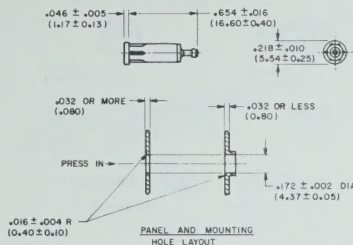
RATINGS

Current: 5 amps

Breakdown Voltage: 3500 Vrms minimum†

Contact Resistance: 0.005 ohms maximum

Contact-To-Panel C: 1 pF nominal



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Machined contact with turret terminal
- Installs by pressing into mounting hole, no mounting hardware required
- Closed entry blocks access of probes greater than .085" (2.16mm)
- Nylon UL approved for self extinguishing

SILVER PLATING

PART NO.	COLOR	PART NO.	COLOR
105-1041-001	White	105-1047-001	Yellow
105-1042-001	Red	105-1048-001	Brown
105-1043-001	Black	105-1050-001	Blue
105-1044-001	Green	105-1052-001	Violet
105-1046-001	Orange	105-1053-001	Gray

Insulated Metal Clad: Military Type

SPECIFICATIONS

Contact: Brass per QQ-B-626D with wrap around
beryllium copper spring per QQ-C-533

Finish: Gold

Body: Nylon 66 per ASTM D4066

Threaded Brass Jacket: per QQ-B-626D, nickel plated

Std. Colors: Ten per FED-STD-595

Hardware: Nickel plated washer and nut (unassembled)

Panel Thickness: Up to .218" (5.45mm)

RATINGS

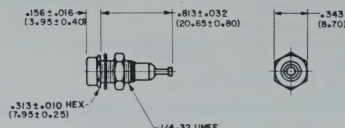
Current: 10 amps

Breakdown Voltage: 5700 Vrms minimum†

Contact Resistance: 0.004 ohms maximum

Contact-To-Panel C: 2 pF nominal

Manufactured to meet MIL-C-39024/10



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Machined contact with turret terminal
- For military or industrial applications
- Closed entry blocks access of probes greater than .085" (2.16mm)
- Nylon UL approved for self extinguishing

GOLD PLATING

EFJ PART NO. TO MIL-SPEC. PART NO. CROSS REFERENCE		
PART NO.	COLOR	MIL-C-39024/10
105-0201-200	White	-01
105-0202-200	Red	-02
105-0203-200	Black	-03
105-0208-200	Brown	-04
105-0204-200	Green	-05
105-0206-200	Orange	-06
105-0210-200	Blue	-07
105-0207-200	Yellow	-08
105-0213-200	Gray	-09
105-0212-200	Violet	-10

Insulated Metal Clad: Standard Type

SPECIFICATIONS

Contact: Phosphor bronze per QQ-B-750

Finish: Silver

Body: Nylon 66 per ASTM D4066

Threaded Brass Jacket: Per QQ-B-626D, nickel plated

Std. Colors: Ten per FED-STD-595

Hardware: Nickel plated nut (unassembled)

Panel Thickness: Up to .281" (7.10mm)

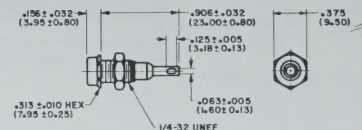
RATINGS

Current: 10 amps

Breakdown Voltage: 5700 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2 pF nominal



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Formed contact with slotted terminal
- Nylon UL approved for self extinguishing

SILVER PLATING

PART NO.	COLOR	PART NO.	COLOR
105-0251-001	White	105-0257-001	Yellow
105-0252-001	Red	105-0258-001	Brown
105-0253-001	Black	105-0260-001	Blue
105-0254-001	Green	105-0262-001	Violet
105-0256-001	Orange	105-0263-001	Gray

Insulated Deluxe

SPECIFICATIONS

Contact: Brass body per QQ-B-626D with wrap around
beryllium copper spring per QQ-C-533

Finish: Silver

Body: Nylon 66 per ASTM D4066

Std. Colors: Ten per FED-STD-595

Hardware: Nickel plated nut (unassembled)

Body Thread Stripping Torque: 4.0 lb. in. (4.5 kg. cm.)

Panel Thickness: Up to .437" (11.10mm)

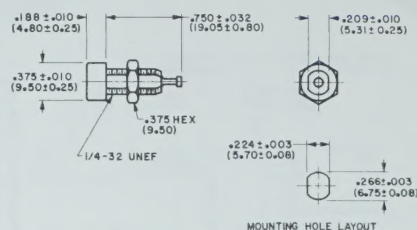
RATINGS

Current: 10 amps

Breakdown Voltage: 5700 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2 pF nominal



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Machined contact with turret terminal
- Hex socket head .188" (4.77mm) for ease in mounting
- Closed entry blocks access of probes greater than .085" (2.16mm)
- Nylon UL approved for self extinguishing

SILVER PLATING

PART NO.	COLOR	PART NO.	COLOR
105-0601-001	White	105-0607-001	Yellow
105-0602-001	Red	105-0608-001	Brown
105-0603-001	Black	105-0610-001	Blue
105-0604-001	Green	105-0612-001	Violet
105-0606-001	Orange	105-0613-001	Gray

Insulated Hex Head

SPECIFICATIONS

Contact: Brass body per QQ-B-626D with wrap around beryllium copper spring per QQ-C-533

Finish: Tin

Body: Nylon 66 per ASTM D4066

Std. Colors: Three or six per FED-STD-595

Hardware: Nickel plated nut (unassembled)

Body Thread Stripping Torque: 4.0 lb. in. (4.5 kg. cm.)

Panel Thickness: Up to .313" (8 mm)

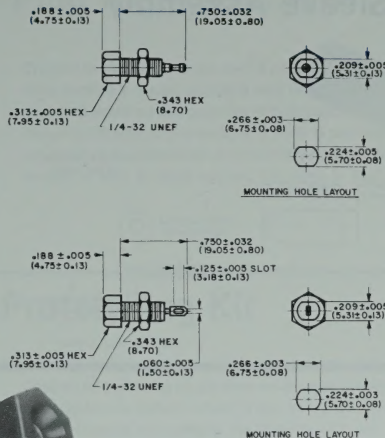
RATINGS

Current: 10 amps

Breakdown Voltage: 5700 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2 pF nominal



For Standard Tip Plug: .080" (2mm) Diameter
FEATURES:

- Machined contacts
- Hex head for ease in mounting
- Turret or combination slotted and turret terminal
- Closed entry blocks access of probes greater than .085" (2.16mm)
- Nylon UL approved for self extinguishing

TIN PLATED TURRET TERMINAL

PART NO.	COLOR	PART NO.	COLOR
105-2201-601	White	105-2203-601	Black
105-2202-601	Red		
TIN PLATED COMBINATION TERMINAL			
PART NO.	COLOR	PART NO.	COLOR
105-2201-602	White	105-2204-602	Green
105-2202-602	Red	105-2207-602	Yellow
105-2203-602	Black	105-2210-602	Blue

Insulated Standard

SPECIFICATIONS

Contact: Phosphor bronze per QQ-B-750

Finish: Bright tin

Body: Nylon 66 per ASTM D4066

Std. Colors: Ten per FED-STD-595

Hardware: Nickel plated nut (unassembled)

Body Thread Stripping Torque: 4.0 lb. in. (4.5 kg. cm.)

Panel Thickness: Up to .437" (11.10mm)

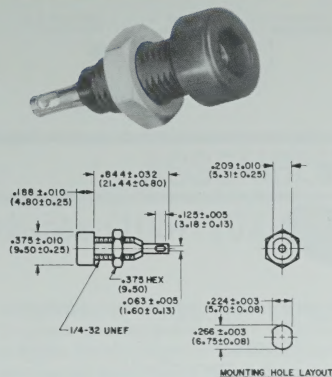
RATINGS

Current: 10 amps

Breakdown Voltage: 5700 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2 pF nominal



For Standard Tip Plug: .080" (2mm) Diameter
FEATURES:

- Formed contact
- Hex socket head .188" (4.77mm) for ease in mounting
- Nylon UL approved for self extinguishing

BRIGHT TIN PLATING

PART NO.	COLOR	PART NO.	COLOR
105-0801-001	White	105-0807-001	Yellow
105-0802-001	Red	105-0808-001	Brown
105-0803-001	Black	105-0810-001	Blue
105-0804-001	Green	105-0812-001	Violet
105-0806-001	Orange	105-0813-001	Gray

Insulated .125" (3.2mm) Dia.

SPECIFICATIONS

Contact: Phosphor bronze per QQ-B-750

Finish: Bright tin

Body: Nylon 66 per ASTM D4066

Std. Colors: Seven per FED-STD-595

Hardware: Nickel plated nut (unassembled)

Body Thread Stripping Torque: 4.0 lb. in. (4.5 kg. cm.)

Panel Thickness: Up to .437" (11.10mm)

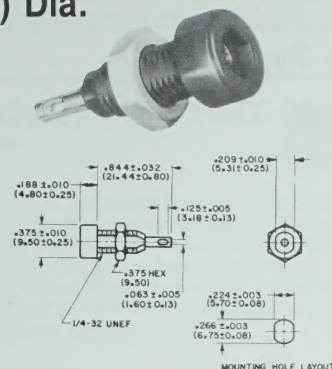
RATINGS

Current: 10 amps

Breakdown Voltage: 5700 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2 pF nominal



For Special Tip Plug: .125" (3.2mm) Diameter
FEATURES:

- Formed contact with slotted terminal
- Hex socket head .188" (4.77mm) for ease in mounting
- Nylon UL approved for self extinguishing

BRIGHT TIN PLATING

PART NO.	COLOR	PART NO.	COLOR
105-1001-001	White	105-1004-001	Green
105-1002-001	Red	105-1007-001	Yellow
105-1003-001	Black	105-1008-001	Brown
		105-1010-001	Blue

Insulated Tip Jack and Sleeve Assembly

SPECIFICATIONS

Contact: Brass body per QQ-B-626D with wrap around
beryllium copper spring per QQ-C-533

Finish: Silver

Body: Nylon 66 per ASTM D4066

Std. Colors: Six per FED-STD-595

Hardware: Nylon handle (assembled)

Body Thread Stripping Torque: 4.0 lb. in. (4.5kg.cm.)

Panel Thickness: Up to .125" (3.2mm)

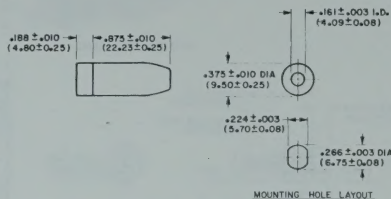
RATINGS

Current: 10 amps

Breakdown Voltage: 5700 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2 pF nominal



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Machined contact with turret terminal
- Includes deluxe tip jack 105-060X-001
- For panel or in line applications
- Hex socket head .188" (4.77mm) for ease in mounting
- Nylon UL approved for self extinguishing

SILVER PLATING

PART NO.	COLOR	PART NO.	COLOR
105-0701-001	White	105-0704-001	Green
105-0702-001	Red	105-0707-001	Yellow
105-0703-001	Black	105-0710-001	Blue

TIP PLUGS

APPLICATION • Test leads

Insulated Standard: Small Handle

SPECIFICATIONS

Material: Brass per QQ-B-626D

Finish: Nickel

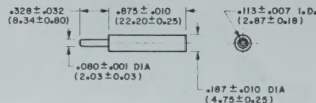
Insulated Handle: Nylon 66 per ASTM D4066

Std. Colors: Six per FED-STD-595

RATINGS

Breakdown Voltage: 3500 Vrms minimum†

Current: 10 amps Contact Resistance: 0.010 ohms maximum



For Standard Tip Jack: .080" (2mm) Diameter

FEATURES:

- Solder type connection
- Accepts wire sizes up to 16 gauge
- Nylon UL approved for self extinguishing

NICKEL PLATING

PART NO.	COLOR	PART NO.	COLOR
105-0771-001	White	105-0774-001	Green
105-0772-001	Red	105-0777-001	Yellow
105-0773-001	Black	105-0780-001	Blue

Insulated: Solderless Type

SPECIFICATIONS

Material: Brass per QQ-B-626D

Finish: Nickel

Insulated Handle: Nylon 66 per ASTM D4066

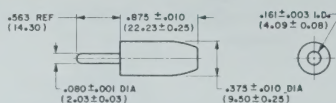
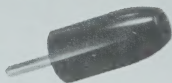
Std. Colors: Ten per FED-STD-595

RATINGS

Current: 10 amps

Breakdown Voltage: 3500 Vrms minimum†

Contact Resistance: 0.010 ohms maximum



For Standard Tip Jack: .080" (2mm) Diameter

FEATURES:

- Recessed head to reduce shock hazard
- Accepts wire sizes up to 16 gauge
- Nylon UL approved for self extinguishing

NICKEL PLATING

PART NO.	COLOR	PART NO.	COLOR
105-0301-001	White	105-0307-001	Yellow
105-0302-001	Red	105-0308-001	Brown
105-0303-001	Black	105-0310-001	Blue
105-0304-001	Green	105-0312-001	Violet
105-0306-001	Orange	105-0313-001	Gray

Insulated Stacking: Single Type

SPECIFICATIONS

Contact: Brass body per QQ-B-626D with wrap around
beryllium copper spring per QQ-C-533
(Silver plated)

Finish: Nickel

Insulated Handle: Nylon 66 per ASTM D4066

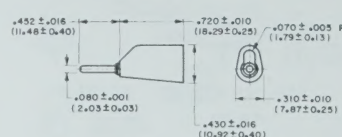
Std. Colors: Six per FED-STD-595

RATINGS

Current: 10 amps

Breakdown Voltage: 3500 Vrms minimum†

Contact Resistance: 0.010 ohms maximum



For Standard Tip Jack: .080" (2mm) Diameter

FEATURES:

- Solderless type connection
- Closed entry blocks access of probes greater than .085" (2.16mm)
- Accepts wire sizes up to 16 gauge
- Nylon UL approved for self extinguishing

NICKEL PLATING

PART NO.	COLOR	PART NO.	COLOR
105-1201-001	White	105-1204-001	Green
105-1202-001	Red	105-1207-001	Yellow
105-1203-001	Black	105-1210-001	Blue

See Page 9 for assembly tools.

Standard Stacking Tip Plug Kit



Designed for engineering lab use where a wide variety of electronic hardware is needed. Included in each kit is a selection of our most popular standard plugs. Use for making patch cords, designing prototypes or other applications where tip plugs are required in the lab and/or design work. Assembly equipment is included in each kit where required. Kits come in tough

polyethylene plastic boxes with attached cover. This kit contains 10 each of standard color tip plugs; one assembly tool and assembly fixture.

PART NO.
105-1299-001

Hardware Design and Prototyping Kit

Test Jacks, Tip Jacks, and Tip Plugs



Designed for engineering lab use where a wide variety of electronic hardware is needed. Included in each kit is a selection of our most popular plugs and jacks. Use for making patch cords, designing prototypes or other applications where tip plugs and jacks are required in the lab and/or design work. Kits come in tough polyethylene plastic stackable nine drawer cabinets. This kit contains an assortment of test jacks, tip plugs and tip

jacks for plug sizes .080" (2mm) and .120" (3mm) diameter. Includes both insulated and uninsulated types, military type and Rib-Loc® types.

PART NO.
105-2299-001

ASSEMBLY TOOLS AND FIXTURES

Assembly Tools and Fixtures (105-120X-001 Series)

For Standard Stacking Tip Plugs: .080" (2mm) Diameter



Quick and easy assembly of standard stacking tip plug .080" (2mm) diameter is possible with the assembly tool and fixtures shown here. Feed wire through cross hole of metal contact. Insert contact and wire into housing. Place into fixture. Push tip of tool into rear of contact. Snap contact into place. Handle of tool is curved to fit comfortably into hand of installer. Fixture and tip of tool made from tool steel.

FIXTURE PART NO.
251-0111-001
TOOL PART NO.
251-0115-001

Assembly Tools and Fixtures (108-108X-001 Series)

For Standard Stacking Banana Plugs: .175" (4.44mm) Across Flats



Quick and easy assembly of standard banana plug .175" (4.44mm) diameter is possible with the assembly tool and fixtures shown here. Feed wire through cross hole of metal contact. Insert contact and wire into housing. Place into fixture. Push tip of tool into rear of contact. Snap contact into place. Handle of tool is curved to fit hand comfortably. Fixture and tip of tool made from tool steel.

FIXTURE PART NO.
251-0111-003
TOOL PART NO.
251-0115-002

A low cost installation system for reliable, crimp-on electronic hardware designed for those who insert mold or assemble wire to connectors.

VIBRATION PROOF TERMINAL

Terminal barrel tightly crimped around conductor insulation to supply a strain relief giving optimum protection against failure from stress, shock, and vibration.

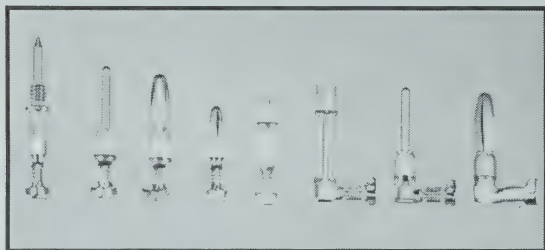
RELIABLE ELECTRICAL CONTACT

Multiple deep serrations remove oxidation during crimping and serve to securely grip conductor strands for a void free, gas tight, electrical and mechanical connection.

QUALITY MATERIALS

Nickel silver terminal for the best conductivity, crimp ability, and strength.

Nickel silver springs for excellent conductivity strength and long life.



UNIQUE NEW METHODS

Johnson Component Products, manufacturer of quality electronic circuit hardware for more than 60 years, has developed unique solderless techniques for attaching wire to a variety of electronic circuit interconnects. The banana plug or other electronic interconnect device is mounted on a strip (patent pending) for semi-automatic solderless wire terminations. With existing solderless crimping technology, the wire is fastened to the interconnect device with a double crimp: one for a gas tight electrical connection, and the other for a vibration and shock strain relief.

FEATURES

- Reliable solderless crimp electrical connections.
- Snug insulation crimp for maximum strain relief.
- Designed for semi-automatic wire application with rates up to 1,000 per hour.
- An eccentric profile device that enhances insert molding.

APPLICATIONS

- Insert molded plugs and jacks on test leads and patch cords.
- Prod tips for test leads.
- Specialized molded connections for electrical/electronic equipment.
- Customized cable assemblies.

COST SAVINGS FOR YOU

As an assembler of wire terminated electronic hardware, you save three ways with **STRIPLINE** hardware. First, you save time. The semi-automatic **STRIPLINE** termination method is an estimated 10-times faster than hand-soldering connectors. Second, you save labor cost, since a skilled operator can make up to 1,000 terminations per hour, compared to a typical rate of 100 per hour soldered connections. This means highly desirable labor savings. And third, you save warranty expense. With the new strain relief and solderless connections a new reliability is established. Together, these savings mean a lower cost, higher quality assembly for **your** high quality product.

ASSEMBLY MACHINES

Pneumatic crimping presses are available for high speed manufacturing. Hand crimping tools are also available for crimping loose piece assemblies for molding prototypes or lower quantity manufacturing requirements.

TYPES TO MEET YOUR REQUIREMENTS

Johnson **STRIPLINE** hardware is available in 10 standard types to fit most applications. **STRIPLINE** also can be customized to your particular requirements with minimum tooling costs. (Contact our Marketing Department.) Standard **STRIPLINE** types include straight and right angle versions of the most popular interconnects such as: standard banana plugs and jacks, miniature banana plugs and jacks, tip plugs and a test lead tip. All types are supplied on reels. The miniature banana plugs and miniature jacks are supplied on reels of about 3,000 pieces. All others are on reels of about 2,000 pieces.



The **STRIPLINE** hardware terminal is made from nickel silver selected for the best conductivity, crimp ability and strength. All machined parts are nickel plated.

TERMINAL ATTACHING EQUIPMENT

PNEUMATIC

This is a bench mounted, air operated crimping machine that provides for the high speed application of **STRIPLINE** terminals. The sturdy compact press requires a minimum amount of space.

The right angle type terminals are fed from back to front and straight terminals are fed from left to right and are crimped to wire and cut off automatically in one operation. Electrical foot treadle activation increases ease of operation, leaving hands free for wire insertion. Die sets can be interchanged to accommodate different E.F. Johnson terminals. Press has safety features that make it possible to meet current safety standards.

Dimensions:

Height - 13½"
 Width - 12"

Depth without reel arm - 12"
 Depth with reel arm - 37¼"

HAND CRIMPING TOOL

Incorporates dies that crimp both conductor and insulation in one operation for two sizes of terminals.

Part Number 243-0000-051



JOHNSON®

TEN STYLES AVAILABLE • CRIMP-ON ELECTRONIC HARDWARE

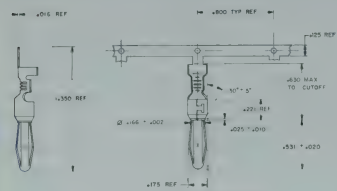
STRIPLINE

HARDWARE

Standard Banana Plug, Straight

243-8100-001

*243-8100-002

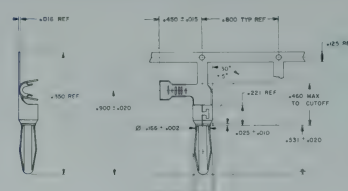


1. Material:
Terminal - CDA 752 nickel silver per ASTM B122
Center Pin - Brass, per QQ-B-626, nickel plated
Banana Spring - CDA 770 nickel silver per ASTM B122
2. Current Rating:
15 amps max, or as determined by wire type and size
3. Wire Crimping Data:
Conductor Size Range: 18-20 AWG
Insulation O.D. Range: .100-.150
Pullout Strength: 18 AWG-20 lbs. min.
20 AWG-15 lbs. min.
4. Crimping Machine and Tooling:
Crimping Machine Ass'y with Dieholder & Dieset
Dieholder w/Dieset 243-0000-111
Dieset 243-0000-112

* Similar to 243-8100-001 but for smaller diameter wire.
Call factory for crimping machine part numbers.

Standard Banana Plug, 90°

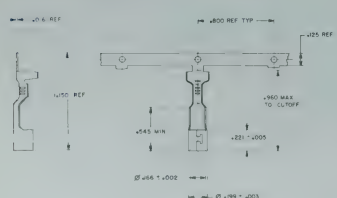
243-8200-001



1. Material:
Terminal - CDA 752 nickel silver per ASTM B122
Center Pin - Brass, per QQ-B-626, nickel plated
Banana Spring - CDA 770 nickel silver per ASTM B122
2. Current Rating:
10 amps max, or as determined by wire type and size
3. Wire Crimping Data:
Conductor Size Range: 18-20 AWG
Insulation O.D. Range: .100-.150
Pullout Strength: 18 AWG-20 lbs. min.
20 AWG-15 lbs. min.
4. Crimping Machine and Tooling:
Crimping Machine Ass'y with Dieholder & Dieset
Dieholder w/Dieset 243-0000-116
Dieset 243-0000-112

Standard Banana Jack, Straight

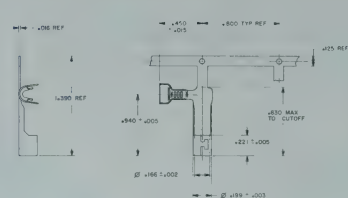
243-6100-001



1. Material:
CDA 752 nickel silver per ASTM B122
2. Current Rating:
15 amps max, or as determined by wire type and size
3. Wire Crimping Data:
Conductor Size Range: 18-20 AWG
Insulation O.D. Range: .100-.150
Pullout Strength: 18 AWG-20 lbs. min.
20 AWG-15 lbs. min.
4. Crimping Machine and Tooling:
Crimping Machine Ass'y with Dieholder & Dieset
Dieholder w/Dieset 243-0000-101
Dieset 243-0000-112

Standard Banana Jack, 90°

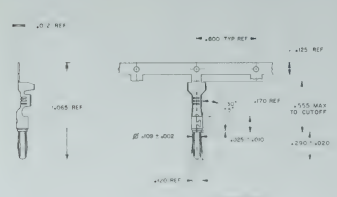
243-6200-001



1. Material:
CDA 752 nickel silver per ASTM B122
2. Current Rating:
15 amps max, or as determined by wire type and size
3. Wire Crimping Data:
Conductor Size Range: 18-20 AWG
Insulation O.D. Range: .100-.150
Pullout Strength: 18 AWG-20 lbs. min.
20 AWG-15 lbs. min.
4. Crimping Machine and Tooling:
Crimping Machine Ass'y with Dieholder & Dieset
Dieholder w/Dieset 243-0000-102
Dieset 243-0000-112

Miniature Banana Plug, Straight

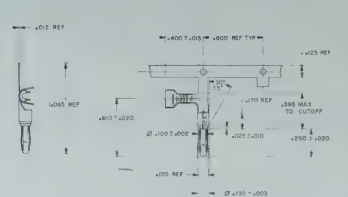
243-8300-001



1. Material:
Terminal - CDA 752 nickel silver per ASTM B122
Center Pin - Brass, per QQ-B-626, nickel plated
Banana Spring - CDA 770 nickel silver per ASTM B122
2. Current Rating:
10 amps max, or as determined by wire type and size
3. Wire Crimping Data:
Conductor Size Range: 20-22 AWG
Insulation O.D. Range: .065-.105
Pullout Strength: 20 AWG-15 lbs. min.
22 AWG-10 lbs. min.
4. Crimping Machine and Tooling:
Crimping Machine Ass'y with Dieholder & Dieset
Dieholder w/Dieset 243-0000-106
Dieset 243-0000-122

Miniature Banana Plug, 90°

243-8400-001



1. Material:
Terminal - CDA 752 nickel silver per ASTM B122
Center Pin - Brass, per QQ-B-626, nickel plated
Banana Spring - CDA 770 nickel silver per ASTM B122
2. Current Rating:
10 amps max, or as determined by wire type and size
3. Wire Crimping Data:
Conductor Size Range: 20-22 AWG
Insulation O.D. Range: .065-.105
Pullout Strength: 20 AWG-15 lbs. min.
22 AWG-10 lbs. min.
4. Crimping Machine and Tooling:
Crimping Machine Ass'y with Dieholder & Dieset
Dieholder w/Dieset 243-0000-107
Dieset 243-0000-126

Miniature Banana Jack, Straight

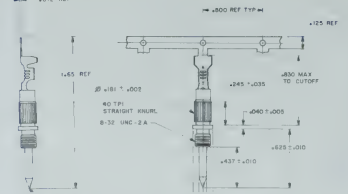
243-6300-001



1. Material:
CDA 752 nickel silver per ASTM B122
2. Current Rating:
10 amps max, or as determined by wire type and size
3. Wire Crimping Data:
Conductor Size Range: 20-22 AWG
Insulation O.D. Range: .065-.105
Pullout Strength: 20 AWG-15 lbs. min.
22 AWG-10 lbs. min.
4. Crimping Machine and Tooling:
Crimping Machine Ass'y with Dieholder & Dieset
Dieholder w/Dieset 243-0000-106
Dieset 243-0000-122

Test Lead Tip, Straight

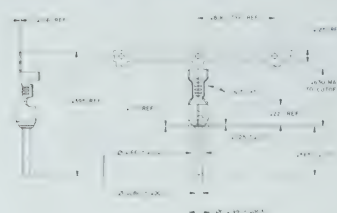
243-9100-001



1. Material:
Terminal - CDA 752 nickel silver per ASTM B122
Tip - Brass, per QQ-B-626, nickel plated
2. Current Rating:
15 amps max, or as determined by wire type and size
3. Wire Crimping Data:
Conductor Size Range: 18-20 AWG
Insulation O.D. Range: .065-.105
Pullout Strength: 18 AWG-20 lbs. min.
20 AWG-15 lbs. min.
4. Crimping Machine and Tooling:
Crimping Machine Ass'y with Dieholder & Dieset
Dieholder w/Dieset 243-0000-108
Dieset 243-0000-114

Standard Tip Plug, Straight

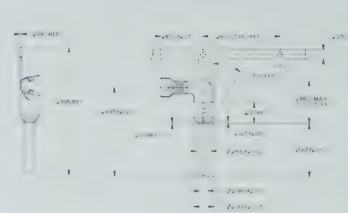
243-5100-001



1. Material:
Terminal - CDA 752 nickel silver per ASTM B122
Tip Plug - Brass, per QQ-B-626, nickel plated
2. Current Rating:
10 amps max, or as determined by wire type and size
3. Wire Crimping Data:
Conductor Size Range: 18-20 AWG
Insulation O.D. Range: .100-.150
Pullout Strength: 18 AWG-20 lbs. min.
20 AWG-15 lbs. min.
4. Crimping Machine and Tooling:
Crimping Machine Ass'y with Dieholder & Dieset
Dieholder w/Dieset 243-0000-101
Dieset 243-0000-112

Standard Tip Plug, 90°

243-5200-001



1. Material:
Terminal - CDA 752 nickel silver per ASTM B122
Tip Plug - Brass, per QQ-B-626, nickel plated
2. Current Rating:
10 amps max, or as determined by wire type and size
3. Wire Crimping Data:
Conductor Size Range: 18-20 AWG
Insulation O.D. Range: .100-.150
Pullout Strength: 18 AWG-20 lbs. min.
20 AWG-15 lbs. min.
4. Crimping Machine and Tooling:
Crimping Machine Ass'y with Dieholder & Dieset
Dieholder w/Dieset 243-0000-102
Dieset 243-0000-116

E.F. JOHNSON COMPANY, Component Products, P.O. Box 59089, Minneapolis, Minnesota 55459-0089
OUTSTATE CALL TOLL FREE: 1-800-247-8256 IN MINN. CALL: 1-507-835-6222 TLX: 290470 FAX: 1-507-835-8356

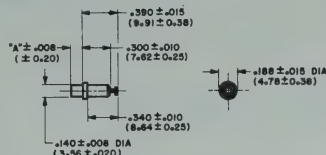
Uninsulated Rivet Type, Turret Terminal Type

SPECIFICATIONS

Jack Body: Brass per QQ-B-626D
Finish: Silver

RATINGS

Current: 10 amps
Contact Resistance: 0.010 ohms maximum



For Miniature Banana Plug: .120" (3mm) Across Flats
FEATURES:

- Small size; high current carrying capacity
- Solder turret for rapid wire attachment

SILVER PLATING		
PART NO.	PANEL THICKNESS	"A" DIMENSION
108-1300-501	.063" (1.6mm)	.105" (2.67mm)
108-1300-602	.093" (2.4mm)	.135" (3.43mm)
108-1300-503	.125" (3.2mm)	.165" (4.19mm)

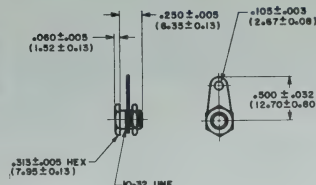
Uninsulated Threaded Type

SPECIFICATIONS

Jack Body: Brass per QQ-B-626D
Finish: Nickel
Hardware: Nickel plated nut; stamped tin plated solder terminal (unassembled)
Panel Thickness: Up to .110" (2.8mm)

RATINGS

Current: 10 amps
Contact Resistance: 0.010 ohms maximum



For Miniature Banana Plug: .120" (3mm) Across Flats
FEATURES:

- Small size; high current carrying capacity
- Solder terminal accepts up to 12 gauge wire

NICKEL PLATING	
PART NO.	
108-1021-001	

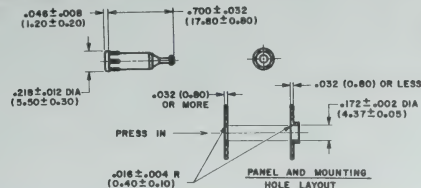
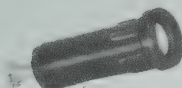
Insulated Rib-Loc® Turret Terminal

SPECIFICATIONS

Contact: Brass per QQ-B-626D
Finish: Silver
Body: Nylon 66 per ASTM D4066
Std. Colors: Six per FED-STD-595
Panel Thickness: Up to .313" (8mm)

RATINGS

Current: 10 amps
Breakdown Voltage: 3500 Vrms minimum†
Contact Resistance: 0.010 ohms maximum
Contact-To-Panel C: 2.4 pF nominal



For Miniature Banana Plug: .120" (3mm) Across Flats
FEATURES:

- Hardwareless Rib-Loc® mounting design
- Nylon UL approved for self extinguishing

SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-1101-001	White	108-1104-001	Green
108-1102-001	Red	108-1107-001	Yellow
108-1103-001	Black	108-1110-001	Blue

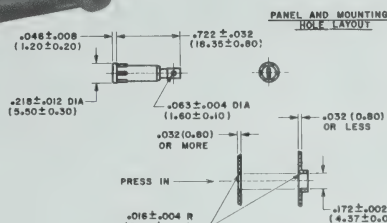
Insulated Rib-Loc® Solder Terminal

SPECIFICATIONS

Contact: Brass per QQ-B-626D
Finish: Bright tin
Body: Nylon 66 per ASTM D4066
Std. Colors: Six per FED-STD-595
Panel Thickness: Up to .313" (8mm)

RATINGS

Current: 10 amps
Breakdown Voltage: 3500 Vrms minimum†
Contact Resistance: 0.010 ohms maximum
Contact-To-Panel C: 2.4 pF nominal



For Miniature Banana Plug: .120" (3mm) Across Flats
FEATURES:

- Hardwareless Rib-Loc® mounting design
- Pierced hole accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

BRIGHT TIN PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-2101-801	White	108-2104-801	Green
108-2102-801	Red	108-2107-801	Yellow
108-2103-801	Black	108-2110-801	Blue

Insulated Threaded Solder Terminal

SPECIFICATIONS

Contact: Brass per QQ-B-626D

Finish: Bright tin

Body: Nylon 66 per ASTM D4066

Std. Colors: Six per FED-STD-595

Hardware: Nickel plated nut (unassembled)

Body Thread Stripping Torque: 4.0 lb. in. (4.5kg.cm.)

Panel Thickness: Up to .187" (4.75mm)

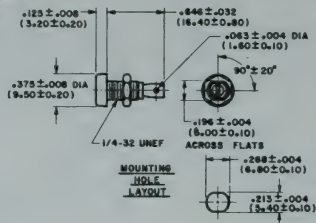
RATINGS

Current: 10 amps

Breakdown Voltage: 5700 Vrms†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2.4 pF nominal



For Miniature Banana Plug: .120" (3mm) Across Flats

FEATURES:

- Keyed mounting with double flats
- Pierced hole accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

BRIGHT TIN PLATING

PART NO.	COLOR	PART NO.	COLOR
108-2101-601	White	108-2104-601	Green
108-2102-601	Red	108-2107-601	Yellow
108-2103-601	Black	108-2110-601	Blue

MINIATURE BANANA PLUGS

APPLICATION • Test equipment

Uninsulated Threaded Stud

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D

Plug Spring: One piece beryllium copper per QQ-C-533

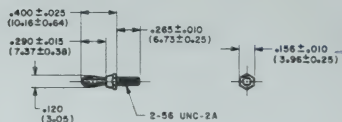
Finish: Nickel

Panel Thickness: Up to .187" (4.75mm)

RATINGS

Current: 10 amps

Contact Resistance: 0.010 ohms maximum



For Miniature .104" (2.64mm) Dia. Banana Jack:

.120" (3mm) Across Flats

FEATURES:

- Rapid mounting threaded stud

NICKEL PLATING

PART NO.
108-1000-106

Insulated Solder Type

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D

Plug Spring: Beryllium copper per QQ-C-533

Finish: Nickel

Insulated Handle: Nylon 66 per ASTM D4066

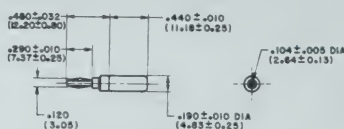
Std. Colors: Six per FED-STD-595

RATINGS

Current: 10 amps

Breakdown Voltage: 3500 Vrms minimum†

Contact Resistance: 0.010 ohms maximum



For Miniature .104" (2.64mm) Dia. Banana Jack:

.120" (3mm) Across Flats

FEATURES:

- Small size for limited space
- Solder terminal accepts up to 18 gauge wire
- Nylon UL approved for self extinguishing

NICKEL PLATING

PART NO.	COLOR	PART NO.	COLOR
108-1001-001	White	108-1004-001	Green
108-1002-001	Red	108-1007-001	Yellow
108-1003-001	Black	108-1010-001	Blue

Uninsulated Rivet Panel Mount: Turret Terminal

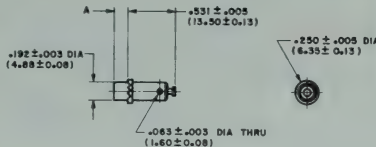
inches (millimeters)

SPECIFICATIONS

Jack Body: Brass per QQ-B-626D
Finish: Nickel

RATINGS

Current: 15 amps
Contact Resistance: 0.010 ohms maximum



For Standard Banana Plug: .175" (4.44mm) Across Flats
FEATURES:

- Nickel plated brass body with cross hole
- Low cost easy mounting banana jack

NICKEL PLATING		
PART NO.	PANEL THICKNESS	"A" DIMENSION
108-2300-501	.063" (1.6mm)	.105" (2.67mm)
108-2300-502	.093" (2.4mm)	.135" (3.43mm)
108-2300-503	.125" (3.2mm)	.165" (4.19mm)

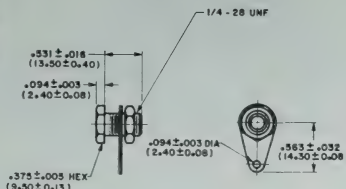
Uninsulated Standard Type: Pierced Lug Terminal

SPECIFICATIONS

Jack Body: Brass per QQ-B-626D
Finish: Nickel
Hardware: Nickel plated nut; stamped tin plated solder terminal (unassembled)
Panel Thickness: Up to .375" (9.50mm)

RATINGS

Current: 15 amps
Contact Resistance: 0.010 ohms maximum



For Standard Banana Plug: .175" (4.44mm) Across Flats
FEATURES:

- Accepts up to 12 gauge wire
- Hex head for faster installation
- For higher current designs

NICKEL PLATING	
PART NO.	
108-0740-001	

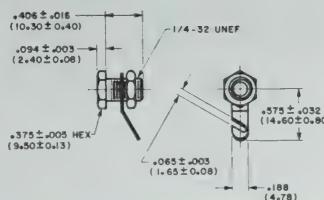
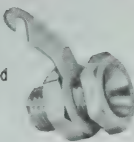
Uninsulated Standard Type: Slotted Lug Terminal

SPECIFICATIONS

Jack Body: Brass per QQ-B-626D
Finish: Nickel
Hardware: Nickel plated nut; stamped tin plated solder terminal (unassembled)
Panel Thickness: Up to .250" (6.35mm)

RATINGS

Current: 15 amps
Contact Resistance: 0.010 ohms maximum



For Standard Banana Plug: .175" (4.44mm) Across Flats
FEATURES:

- Accepts up to 12 gauge wire
- Hex head for faster installation
- For higher current designs

NICKEL PLATING	
PART NO.	
108-0740-102	

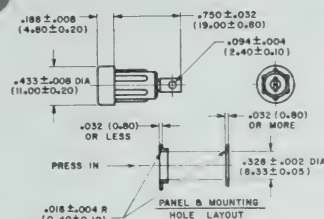
Insulated Rib-Loc® Solder Terminal

SPECIFICATIONS

Contact: Formed brass per QQ-B-626D
Finish: Bright tin
Body: Nylon 66 per ASTM D4066
Std. Colors: Six per FED-STD-595
Panel Thickness: Up to .250" (6.35mm)

RATINGS

Current: 15 amps
Breakdown Voltage: 7000 Vrms minimum†
Contact Resistance: 0.010 ohms maximum
Contact-To-Panel C: 2.4 pF nominal



For Standard Banana Plug: .175" (4.44mm) Across Flats
FEATURES:

- Requires no mounting hardware
- Accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

BRIGHT TIN PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-2301-801	White	108-2304-801	Green
108-2302-801	Red	108-2307-801	Yellow
108-2303-801	Black	108-2310-801	Blue

Insulated Turret Terminal

SPECIFICATIONS

Contact: Machined brass per QQ-B-626D

Finish: Silver

Body: Nylon 66 per ASTM D4066

Std. Colors: Six per FED-STD-595

Hardware: Nickel plated nut (unassembled)

Body Thread Stripping Torque: 6.0 lb. in. (7 kg cm)

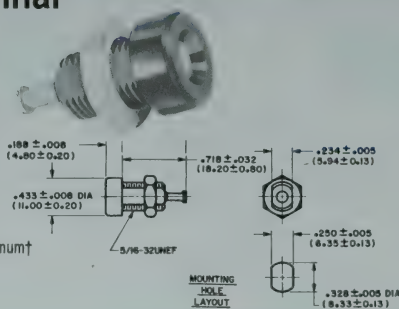
Panel Thickness: Up to .343" (8.8mm)

RATINGS

Current: 15 amps Breakdown Voltage: 7000 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2.4 pF nominal



For Standard Banana Plug: .175" (4.4mm) Across Flats

FEATURES:

- Keyed mounting with double flats
- Nylon UL approved for self extinguishing

SILVER PLATING

PART NO.	COLOR	PART NO.	COLOR
108-2301-621	White	108-2304-621	Green
108-2302-621	Red	108-2307-621	Yellow
108-2303-621	Black	108-2310-621	Blue

Insulated Solder Terminal

SPECIFICATIONS

Contact: Formed brass per QQ-B-626D

Finish: Bright tin

Body: Nylon 66 per ASTM D4066

Std. Colors: Ten per FED-STD-595

Hardware: Nickel plated nut (unassembled)

Body Thread Stripping Torque: 6.0 lb. in. (7kg.cm)

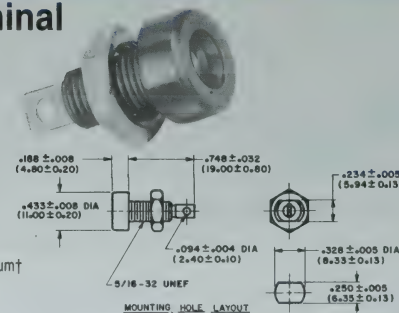
Panel Thickness: Up to .343" (8.8mm)

RATINGS

Current: 15 amps Breakdown Voltage: 7000 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2.4 pF nominal



For Standard Banana Plug: .175" (4.4mm) Across Flats

FEATURES:

- Keyed mounting with double flats
- Accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

BRIGHT TIN PLATING

PART NO.	COLOR	PART NO.	COLOR
108-0901-001	White	108-0907-001	Yellow
108-0902-001	Red	108-0908-001	Brown
108-0903-001	Black	108-0910-001	Blue
108-0904-001	Green	108-0912-001	Violet
108-0906-001	Orange	108-0913-001	Gray

Insulated Pierced Lug Terminal

SPECIFICATIONS

Contact: Brass per QQ-B-626D

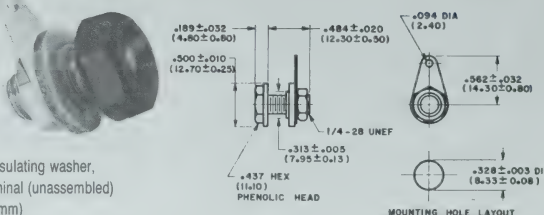
Finish: Nickel

Hex head: Molded phenolic

Std. Colors: Two per FED-STD-595

Hardware: Nickel plated nut, fiber insulating washer, and tin plated solder terminal (unassembled)

Panel Thickness: Up to .281" (7.15mm)



RATINGS

Current: 15 amps

Breakdown Voltage: 1500 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2.4 pF nominal

For Standard Banana Plug: .175" (4.4mm) Across Flats

FEATURES:

- Withstands extreme temperatures and abuse
- Stamped tin plated solder terminal with hole for up to 12 gauge wire
- Integrally molded hex head for fast installation

NICKEL PLATING

PART NO.	COLOR
108-0745-001	Red
108-0745-002	Black

Insulated Slotted Lug Terminal

SPECIFICATIONS

Contact: Brass per QQ-B-626D

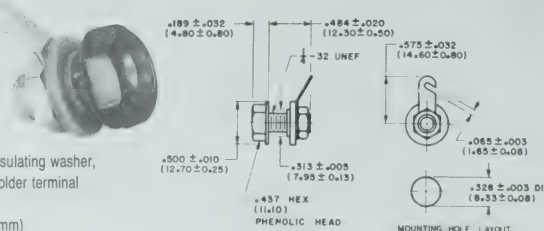
Finish: Nickel

Hex head: Molded phenolic

Std. Colors: Two per FED-STD-595

Hardware: Nickel plated nut, fiber insulating washer, and stamped tin plated solder terminal (unassembled)

Panel Thickness: Up to .281" (7.15mm)



RATINGS

Current: 15 amps

Breakdown Voltage: 1500 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 2.4 pF nominal

For Standard Banana Plug: .175" (4.4mm) Across Flats

FEATURES:

- Withstands extreme temperatures and abuse
- Stamped tin plated solder terminal with slot for up to 14 gauge wire
- Integrally molded hex head for fast installation

NICKEL PLATING

PART NO.	COLOR
108-0745-101	Red
108-0745-102	Black

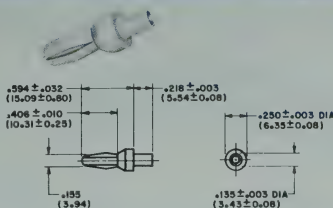
Uninsulated Rivet Type

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
 Plug Spring: Beryllium copper per QQ-C-533
 Finish: Silver
 Panel Thickness: Up to .156" (4mm)

RATINGS

Current: 15 amps Contact Resistance: 0.010 ohms maximum



For Standard Banana Plug: .175" (4.44mm) Across Flats

FEATURES:

- Shorter spring adapts to standard jack or special size jack
- Ideal for limited space applications

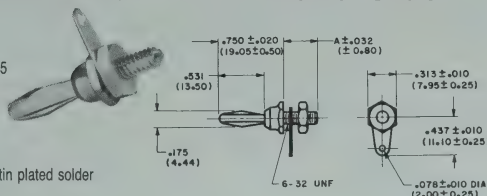
SILVER PLATING	
PART NO.	
108-0754-001	

Uninsulated Panel Mount Threaded Stud

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
 Plug Spring: Nickel silver per QQ-C-585
 Finish: Nickel
 Panel Thickness: Up to:
 .250" (6.35mm)
 .625" (16mm)

Hardware: Nickel plated nut, stamped tin plated solder terminal (unassembled)



RATINGS

Current: 15 amps
 Contact Resistance: 0.010 ohms maximum

For Standard Banana Jack: .175" (4.44mm) Across Flats

FEATURES:

- Two stud lengths adapt to different panel sizes
- Pierced hole for up to 14 gauge wire

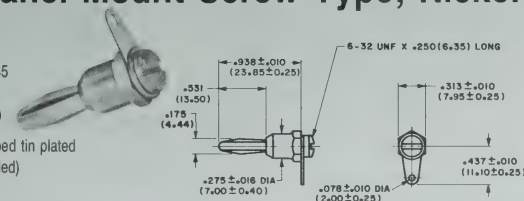
NICKEL PLATING	
PART NO.	STUD LENGTH "A"
108-0750-001	.375" (9.50mm)
108-0750-002	.750" (19.05mm)

Uninsulated Panel Mount Screw Type, Nickel Silver Spring

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
 Plug Spring: Nickel silver per QQ-C-585
 Finish: Nickel
 Panel Thickness: Up to .125" (3.2mm)

Hardware: Nickel plated screw, stamped tin plated solder terminal (unassembled)



For Standard Banana Jack: .175" (4.44mm) Across Flats

FEATURES:

- Rugged screw type
- Stamped tin plated solder terminal with hole for up to 14 gauge wire

NICKEL PLATING	
PART NO.	
108-0753-001	

RATINGS

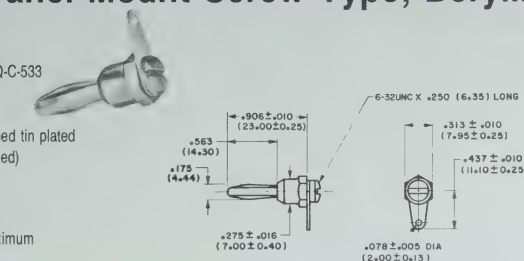
Current: 15 amps Contact Resistance: 0.010 ohms maximum

Uninsulated Panel Mount Screw Type, Beryllium Copper Spring

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
 Plug Spring: Beryllium copper per QQ-C-533
 Finish: Nickel
 Panel Thickness: Up to .156" (4mm)

Hardware: Nickel plated screw, stamped tin plated solder terminal (unassembled)



For Standard Banana Jack: .175" (4.44mm) Across Flats

FEATURES:

- Rugged screw type
- Stamped tin plated solder terminal with hole for up to 14 gauge wire

NICKEL PLATING	
PART NO.	
108-0753-102	

RATINGS

Current: 15 amps
 Contact Resistance: 0.010 ohms maximum

Insulated Solderless Tapered Handle

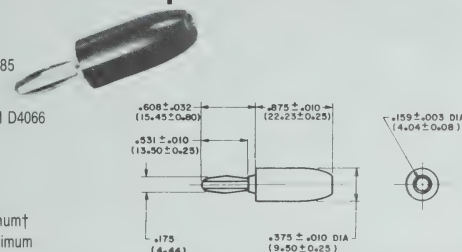
SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
 Plug Spring: Nickel silver per QQ-C-585
 Finish: Nickel

Insulated Handle: Nylon 66 per ASTM D4066
 Std. Colors: Ten per FED-STD-595

RATINGS

Current: 15 amps
 Breakdown Voltage: 3500 Vrms minimum†
 Contact Resistance: 0.010 ohms maximum



For Standard Banana Jack: .175" (4.44mm) Across Flats

FEATURES:

- Fast solderless connection of up to 16 gauge wire
- Recessed plug body to limit shock hazard
- Nylon UL approved for self extinguishing

NICKEL PLATING		
PART NO.	COLOR	PART NO. COLOR
108-0301-001	White	108-0307-001 Yellow
108-0302-001	Red	108-0308-001 Brown
108-0303-001	Black	108-0310-001 Blue
108-0304-001	Green	108-0312-001 Violet
108-0306-001	Orange	108-0313-001 Gray

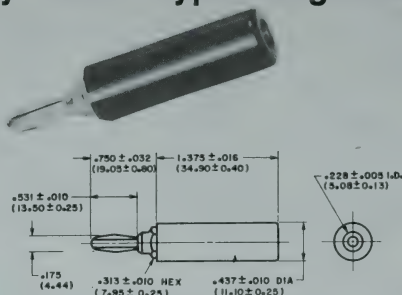
Insulated Hex Body Solder Type Long Handle

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
 Plug Spring: Nickel silver per QQ-C-585
 Finish: Nickel
 Insulated Handle: Nylon 66 per ASTM D4066
 Std. Colors: Two per FED-STD-595

RATINGS

Current: 15 amps
 Breakdown Voltage: 3500 Vrms minimum†
 Contact Resistance: 0.010 ohms maximum



For Standard Banana Jack: .175" (4.44mm) Across Flats
FEATURES:

- Solder type terminal uses up to 16 gauge wire
- Nylon UL approved for self extinguishing

NICKEL PLATING

PART NO.	COLOR
108-0752-001	Black
108-0752-002	Red

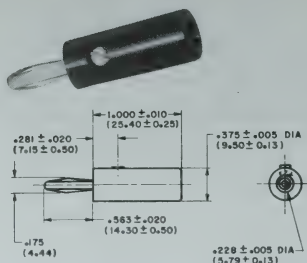
Insulated Side Set Screw Solderless

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
 Plug Spring: Nickel silver per QQ-C-585
 Finish: Nickel
 Insulated Handle: Nylon 66 per ASTM D4066
 Std. Colors: Six per FED-STD-595

RATINGS

Current: 15 amps
 Breakdown Voltage: 35 Vrms minimum†
 Contact Resistance: 0.010 ohms maximum



For Standard Banana Jack: .175" (4.44mm) Across Flats
 For low Voltage (50 WVDC) Applications

FEATURES:

- Fast solderless connection of up to 16 gauge wire
- Set screw for dependable connections with low voltage
- Nylon UL approved for self extinguishing

NICKEL PLATING

PART NO.	COLOR	PART NO.	COLOR
108-1701-101	White	108-1704-101	Green
108-1702-101	Red	108-1707-101	Yellow
108-1703-101	Black	108-1710-101	Blue

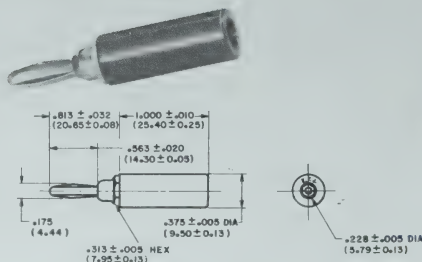
Insulated Hex Body Solder Stud

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
 Plug Spring: Nickel silver per QQ-C-585
 Finish: Nickel
 Insulated Handle: Nylon 66 per ASTM D4066
 Std. Colors: Six per FED-STD-595

RATINGS

Current: 15 amps
 Breakdown Voltage: 3500 Vrms minimum†
 Contact Resistance: 0.010 ohms maximum



For Standard Banana Jack: .175" (4.44mm) Across Flats
FEATURES:

- Wire can be soldered to threaded stud or flared and held by stud for solderless connection
- Solder stud accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

NICKEL PLATING

PART NO.	COLOR	PART NO.	COLOR
108-1761-101	White	108-1764-101	Green
108-1762-101	Red	108-1767-101	Yellow
108-1763-101	Black	108-1770-101	Blue

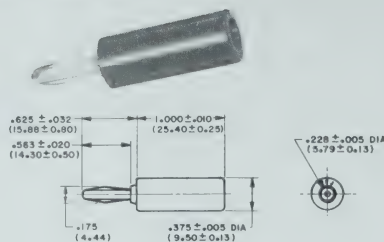
Insulated Round Body Solder Stud

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
 Plug Spring: Nickel silver per QQ-C-585
 Finish: Nickel
 Insulated Handle: Nylon 66 per ASTM D4066
 Std. Colors: Six per FED-STD-595

RATINGS

Current: 15 amps
 Breakdown Voltage: 3500 Vrms minimum†
 Contact Resistance: 0.010 ohms maximum



For Standard Banana Jack: .175" (4.44mm) Across Flats
FEATURES:

- Wire can be soldered to stud or flared and held by threaded stud for solderless connection
- Solder stud accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

NICKEL PLATING

PART NO.	COLOR	PART NO.	COLOR
108-1721-101	White	108-1724-101	Green
108-1722-101	Red	108-1727-101	Yellow
108-1723-101	Black	108-1730-101	Blue

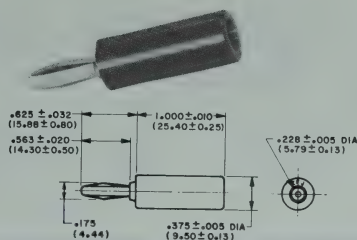
Insulated Round Body Solderless

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
Plug Spring: Nickel silver per QQ-C-585
Finish: Nickel
Insulated Handle: Nylon 66 per ASTM D4066
Std. Colors: Six per FED-STD-595

RATINGS

Current: 15 amps
Breakdown Voltage: 3500 Vrms minimum†
Contact Resistance: 0.010 ohms maximum



For Standard Banana Jack: .175" (4.44mm) Across Flats

FEATURES:

- Wire locked in place by screwing down handle
- Accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-1721-103	White	108-1724-103	Green
108-1722-103	Red	108-1727-103	Yellow
108-1723-103	Black	108-1730-103	Blue

Insulated Stacking Single Type

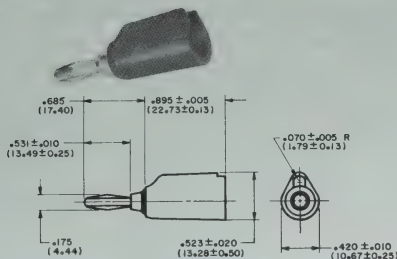
SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
Plug Spring: Silver per QQ-C-585
Finish: Nickel
Insulated Handle: Nylon 66 per ASTM D4066
Std. Colors: Six per FED-STD-595

RATINGS

Current: 15 amps
Breakdown Voltage: 3500 Vrms minimum†
Contact Resistance: 0.010 ohms maximum

For assembly tools see pg. 9.



For Standard Banana Jack: .175" (4.44mm) Across Flats

FEATURES:

- Built in strain relief for long life
- Accepts up to 16 gauge wire
- Accepts standard banana plug from rear
- Nylon UL approved for self extinguishing

NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-1081-001	White	108-1084-001	Green
108-1082-001	Red	108-1087-001	Yellow
108-1083-001	Black	108-1090-001	Blue

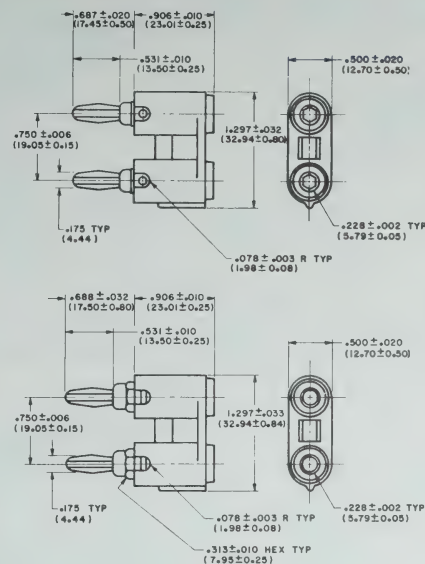
Insulated Stacking Dual Type

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
Plug Spring: Nickel silver per QQ-C-585
Finish: Nickel
Insulated Handle: Nylon 66 per ASTM D4066
Std. Colors: Two per FED-STD-595

RATINGS

Current: 15 amps
Breakdown Voltage: 3500 Vrms minimum†
Contact Resistance: 0.010 ohms maximum



For Standard Banana Jack: .175" (4.44mm) Across Flats

FEATURES:

- Accepts standard banana plug from rear
- Built-in strain relief for long life
- Nylon UL approved for self extinguishing

NICKEL PLATING	
SET SCREW (Accepts wire sizes up to 14 gauge)	
PART NO.	COLOR
108-0252-001	Red
108-0253-001	Black
SOLDERLESS WIRE WRAP (Accepts wire sizes up to 16 gauge)	
PART NO.	COLOR
108-0202-001	Red
108-0203-001	Black

Uninsulated Heavy Duty

SPECIFICATIONS

Jack Body: Brass per QQ-B-626D

Finish: Nickel

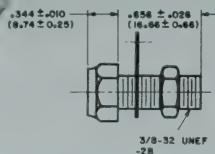
Hardware: Nickel plated nut; stamped tin plated solder terminal (unassembled)

Panel Thickness: Up to .531" (13.50mm)

RATINGS

Current: 40 amps

Contact Resistance: 0.010 ohms maximum



For Jumbo Size Banana Plug: .300" (7.62mm) Across Flats

FEATURES:

- For extremely high current applications
- Accepts up to 10 gauge wire
- Solder terminal with pierced hole
- Withstands severe conditions

NICKEL PLATING
PART NO.
108-0760-001

JUMBO BANANA PLUGS

APPLICATION • Test equipment • Power supplies

Uninsulated Threaded Stud

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D

Plug Spring: Nickel silver per QQ-C-585

Finish: Nickel

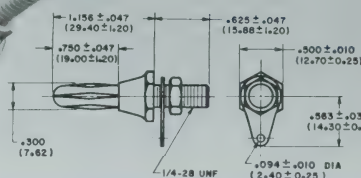
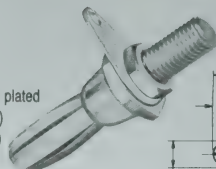
Hardware: Nickel plated nut; stamped tin plated solder terminal (unassembled)

Panel Thickness: Up to .437" (11.10mm)

RATINGS

Current: 40 amps

Contact Resistance: 0.010 ohms maximum



For Jumbo Size Banana Jack: .300" (7.62mm) Across Flats

FEATURES:

- High current capacity
- Tin plated solder terminal with pierced hole for up to 12 gauge wire

NICKEL PLATING
PART NO.
108-0770-001

Uninsulated Panel Mount Screw Type, Pierced Lug Terminal

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D

Plug Spring: Nickel silver per QQ-C-585

Finish: Nickel

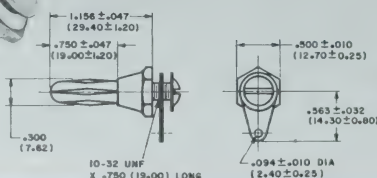
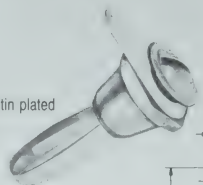
Hardware: Nickel plated screw; stamped tin plated solder terminal (unassembled)

Panel Thickness: Range from .093" (2.4mm) to .500" (12.7mm)

RATINGS

Current: 40 amps

Contact Resistance: 0.010 ohms maximum



For Jumbo Size Banana Jack: .300" (7.62mm) Across Flats

FEATURES:

- High current capacity
- Tin plated solder terminal with pierced hole for up to 12 gauge wire

NICKEL PLATING
PART NO.
108-0771-001

Uninsulated Panel Mount Screw Type, Crimp Lug Terminal

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D

Plug Spring: Nickel silver per QQ-C-585

Finish: Nickel

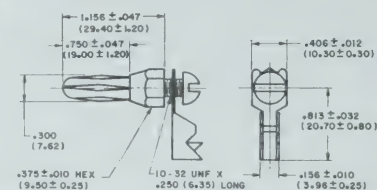
Hardware: Nickel plated screw; stamped tin plated spade lug (unassembled)

Panel Thickness: Up to .125" (3.2mm)

RATINGS

Current: 40 amps

Contact Resistance: 0.010 ohms maximum



For Jumbo Size Banana Jack: .300" (7.62mm) Across Flats

FEATURES:

- High current capacity
- Tin plated solder terminal with pierced hole for connection of wires up to 10 gauge

NICKEL PLATING
PART NO.
108-0771-102

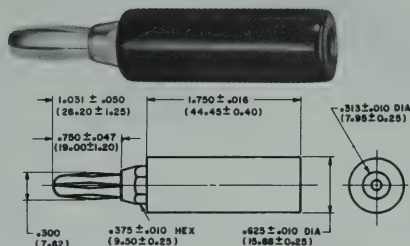
Insulated Hex Body Solder Type

SPECIFICATIONS

Plug Body: Brass per QQ-B-626D
Plug Spring: Nickel silver per QQ-C-585
Finish: Nickel
Insulated Handle: Nylon 66 per ASTM D4066
Std. Colors: Two per FED-STD-595

RATINGS

Current: 40 amps
Breakdown Voltage: 3500 Vrms minimum†
Contact Resistance: 0.010 ohms maximum



For Jumbo Size Banana Jack: .300" (7.62mm) Across Flats

FEATURES:

- High current capacity
- Use with up to 10 gauge wire
- Nylon UL approved for self-extinguishing

NICKEL PLATING	
PART NO.	COLOR
108-0772-001	Black
108-0772-002	Red

BINDING POSTS

APPLICATION • Audio circuitry • RF circuitry

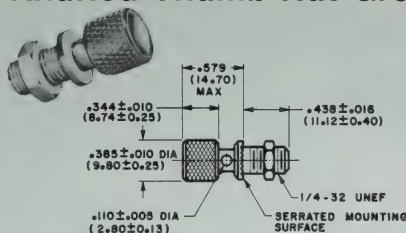
Uninsulated With Knurled Thumb Nut Grounded Type

SPECIFICATIONS

Stud: Brass per QQ-B-626D
Finish: Nickel
Hardware: Nickel plated nut (unassembled)
Panel Thickness: Up to .281" (7.15mm)

RATINGS

Current: 15 Amps



For Standard Banana Plug: .175" (4.44mm) Across Flats

FEATURES:

- Nickel plated stud with serrated mounting surface prevents turning
- Captive thumb nut .110" (2mm) diameter cross-hole accommodates up to 10 gauge wire

NICKEL PLATING	
PART NO.	COLOR
111-2223-001	

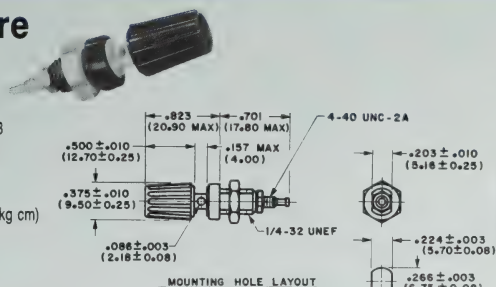
Insulated Miniature

SPECIFICATIONS

Stud: Brass per QQ-B-626D
Finish: Silver
Contact Spring: Beryllium Copper per QQ-C-533
Insulating Material: Nylon 66 per ASTM D4066
Std. Colors: Six per FED-STD-595
Hardware: Nickel plated nut (unassembled)
Body Thread Stripping Torque: 4.0 lb. in. (4.5 kg cm)
Panel Thickness: Up to .156" (3.95mm)

RATINGS

Current: 5 amps **Contact Resistance:** 0.010 ohms maximum
Breakdown Voltage: 3500 Vrms minimum†
Stud-To-Panel C: 2.0 pF nominal



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Captive thumb nut
- Insulated body is flatted to prevent turning
- Nylon UL approved for self-extinguishing

SILVER PLATING			
ACCOMMODATES .080" (2mm) DIAMETER TIP PLUG			
PART NO.	COLOR	PART NO.	COLOR
111-0201-001	White	111-0204-001	Green
111-0202-001	Red	111-0207-001	Yellow
111-0203-001	Black	111-0210-001	Blue

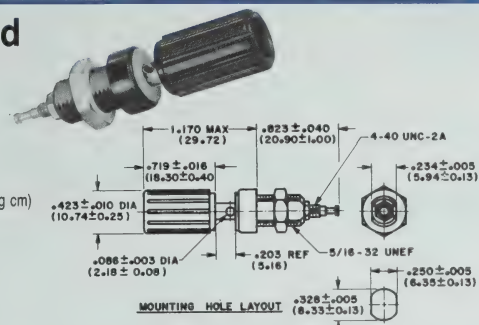
Insulated Standard

SPECIFICATIONS

Stud: Brass per QQ-B-626D
Finish: Silver
Insulating Material: Nylon 66 per ASTM D4066
Std. Colors: Ten per FED-STD-595
Hardware: Nickel plated nut (unassembled)
Body Thread Stripping Torque: 6.0 lb. in (7.0 kg cm)
Panel Thickness: Up to .281" (7.15mm)

RATINGS

Current: 15 amps
Breakdown Voltage: 5700 Vrms minimum†
Stud-To-Panel C: 3.3 pF nominal



For Standard Banana Plug: .175" (4.44mm) Across Flats

FEATURES:

- Turret terminal
- Captive thumb nut
- Insulated body is flatted to prevent turning
- Nylon UL approved for self-extinguishing

SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
111-0101-001	White	111-0107-001	Yellow
111-0102-001	Red	111-0108-001	Brown
111-0103-001	Black	111-0110-001	Blue
111-0104-001	Green	111-0112-001	Violet
111-0106-001	Orange	111-0113-001	Gray

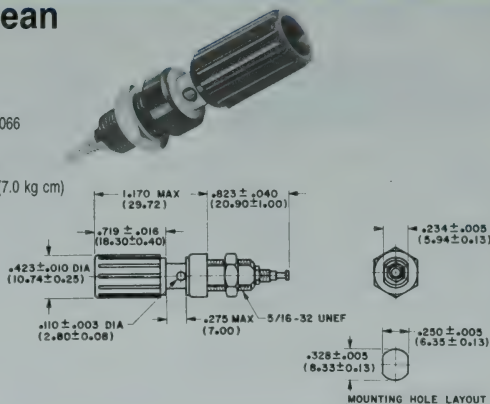
Insulated European

SPECIFICATIONS

Stud: Brass per QQ-B-626D
 Finish: Silver
 Insulating Material: Nylon 66 per ASTM D4066
 Std. Colors: Six per FED-STD-595
 Hardware: Nickel plated nut (unassembled)
 Body Thread Stripping Torque: 6.0 lb. in. (7.0 kg cm)
 Panel Thickness: Up to .281" (7.15mm)

RATINGS

Current: 15 amps
 Breakdown Voltage: 5700 Vrms minimum†
 Stud-To-Panel C: 3.3 pF nominal



For Standard Banana Plug: .175" (4.44mm) Across Flats

FEATURES:

- Recessed jack covers banana plug limiting shock hazard
- Meets rigid European Standards
- Captive thumb nut
- Insulated body is flatted to prevent turning
- Nylon UL approved for self extinguishing

SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
111-0101-521	White	111-0104-521	Green
111-0102-521	Red	111-0107-521	Yellow
111-0103-521	Black	111-0110-521	Blue

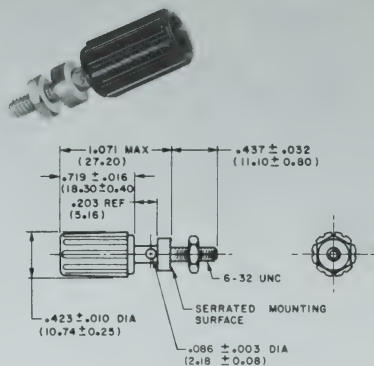
Insulated Standard With Thumb Nut Grounded Type

SPECIFICATIONS

Stud: Brass per QQ-B-626D
 Finish: Nickel
 Insulating Material: Nylon 66 per ASTM D4066
 Std. Colors: Six per FED-STD-595
 Hardware: Nickel plated nut (unassembled)
 Panel Thickness: Up to .313" (7.95mm)

RATINGS

Current: 15 Amps



For Standard Banana Plug: .175" (4.44mm) Across Flats

FEATURES:

- Serrated mounting surface prevents turning
- Captive thumb nut
- .094" (2.39mm) diameter cross-hole accommodates up to 12 gauge wire
- Nylon UL approved for self extinguishing

NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
111-0701-001	White	111-0704-001	Green
111-0702-001	Red	111-0707-001	Yellow
111-0703-001	Black	111-0710-001	Blue

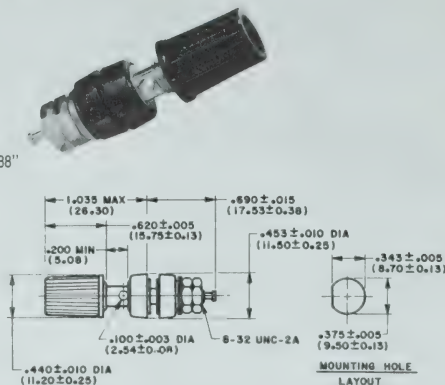
Insulated Standard Mil Type, W/Keyed Insulator

SPECIFICATIONS

Stud: Brass per QQ-B-626D
 Finish: Gold
 Insulating Material: Nylon 66 per ASTM D4066
 Std. Colors: Six per FED-STD-595
 Hardware: Gold plated nuts with serrated washer (unassembled)
 Panel Thickness: Range from .062" (1.58mm) to .188" (4.78mm)

RATINGS

Current: 15 amps
 Breakdown Voltage: 1000 Vrms minimum†
 Stud-To-Panel C: 3.0 pF nominal
 Contact Resistance: 0.010 ohms maximum



For Standard Banana Plug: .175" (4.44mm) Across Flats

FEATURES:

- Keyed insulators prevent turning of installation
- Captive thumb nut
- Metal stud has turret terminal for soldered wire connection
- Nylon UL approved for self extinguishing

GOLD PLATING			
PART NO.	COLOR	PART NO.	COLOR
111-0721-002	White	111-0724-002	Green
111-0722-002	Red	111-0727-002	Yellow
111-0723-002	Black	111-0730-002	Blue

Insulated Standard UL Type, W/Keyed Insulator

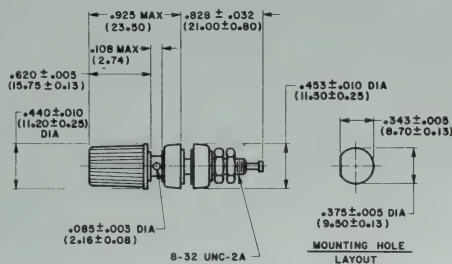
inches (millimeters)

SPECIFICATIONS

Stud: Brass per QQ-B-626D
Finish: Gold or Bright Tin
Insulating Material: Nylon 66 per ASTM D4066
Std. Colors: Six per FED-STD-595
Hardware: Gold plated nuts or bright tin plated nuts (unassembled)
Panel Thickness: Range from .062" (1.58mm) to .250" (6.35mm)

RATINGS

Current: 15 amps
Breakdown Voltage: 1000 Vrms minimum†
Stud-To-Panel C: 3.0 pF nominal
Contact Resistance: 0.010 ohm maximum



For Standard Banana Plug: .175" (4.44mm) Across Flats

FEATURES:

- Keyed insulators prevent turning of installation
- Designed to meet UL-1244, IEC 348.P and C39.5-1974 specifications for distance of thumb nut opening
- Nylon UL approved for self extinguishing

GOLD PLATING

PART NO.	COLOR	PART NO.	COLOR
111-0741-002	White	111-0744-002	Green
111-0742-002	Red	111-0747-002	Yellow
111-0743-002	Black	111-0750-002	Blue

BRIGHT TIN PLATING

PART NO.	COLOR	PART NO.	COLOR
111-0741-003	White	111-0744-003	Green
111-0742-003	Red	111-0747-003	Yellow
111-0743-003	Black	111-0750-003	Blue

Double Turret Standoff

SPECIFICATIONS

Contact: Brass per QQ-B-626D

Finish: Silver

Body: Nylon 66 per ASTM D4066

Std. Colors: Two per FED-STD-595

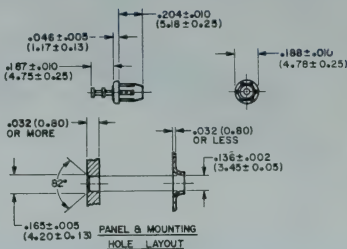
RATINGS

Current: 5 amps

Breakdown Voltage: 3500 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 1 pF nominal



FEATURES:

- No mounting hardware required
- Unique press fit design
- Low cost for single or multi-wire connection
- Nylon UL approved for self extinguishing

SILVER PLATING

PART NO.	COLOR
260-0102-001	Red
260-0103-001	Black

Single Turret Feedthru

SPECIFICATIONS

Contact: Brass per QQ-B-626D

Finish: Silver

Body: Nylon 66 per ASTM D4066

Std. Colors: Two per FED-STD-595

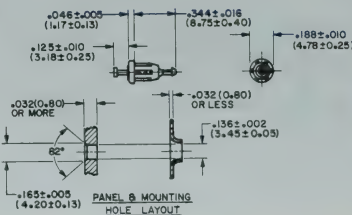
RATINGS

Current: 5 amps

Breakdown Voltage: 3500 Vrms minimum†

Contact Resistance: 0.005 ohms maximum

Contact-To-Panel C: 1 pF nominal



FEATURES:

- No mounting hardware required
- Unique press fit design
- Low cost for single or multi-wire connections
- Nylon UL approved for self extinguishing

SILVER PLATING

PART NO.	COLOR
260-0202-001	Red
260-0203-001	Black

Double Turret Feedthru

SPECIFICATIONS

Contact: Brass per QQ-B-626D

Finish: Silver

Body: Nylon 66 per ASTM D4066

Std. Colors: Three per FED-STD-595

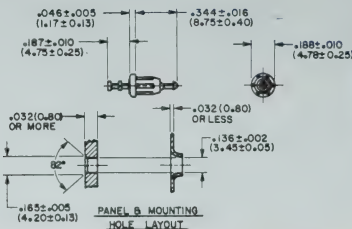
RATINGS

Current: 5 amps

Breakdown Voltage: 3500 Vrms minimum†

Contact Resistance: 0.010 ohms maximum

Contact-To-Panel C: 1 pF nominal



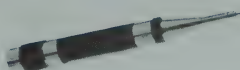
FEATURES:

- No mounting hardware required
- Unique press fit design
- Low cost for single or multi-wire connections
- Nylon UL approved for self extinguishing

SILVER PLATING

PART NO.	COLOR	PART NO.	COLOR
260-0301-001	White	260-0303-001	Black
260-0302-001	Red		

Impact Type Punch



inches (millimeters)

Precision machined tool for lab use in mounting Rib-Loc® terminals. Tool is made of tool steel.

PART NO.

251-0105-001

Production Type Assembly Tool



High volume production mounting of Rib-Loc® terminals is faster and easier with use of this vacuum hold insertion tool. Unit can be used with any type of hand arbor press. Requires an air pressure source of 3-20 PSIG to create a vacuum to hold the terminal in place as operator positions chassis and performs mounting operation.

PART NO.

251-0107-001

Insulated Test Point Strip Handle: Standard Card Type

SPECIFICATIONS

Contact: Formed beryllium copper per QQ-C-533

Finish: Tin

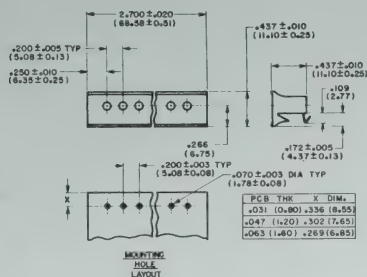
Body: Red nylon 66 per ASTM D4066

RATINGS

Current: 5 amps

Operating Voltage: 1500 Vms†

Contact Resistance: 0.010 ohms maximum



For Standard Tip Plug: .080" (2mm) Diameter

FEATURES:

- Multiple 12 test point design
- Copper alloy contact
- Design holds strip in place while being soldered
- Nylon UL approved for self extinguishing

PART NO.

266-0402-001

HARDWARE KITS

Standard Stacking Banana Plug Kit



Designed for engineering lab use where a wide variety of electronic hardware is needed. Included in each kit is a selection of our most popular standard plugs. Use for making patch cords, designing prototypes or other applications where banana plugs are required in the lab and/or design work. Assembly equipment is included in each kit where required. Kits come in tough polyethylene plastic boxes with attached cover. This kit contains

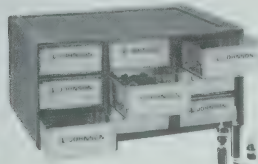
10 each of standard color banana plugs; one assembly tool and assembly fixture.

PART NO.

108-1299-001

Hardware Design and Prototyping Kit

BANANA PLUGS, BANANA JACKS, BINDING POSTS



Designed for engineering lab use where a wide variety of electronic hardware is needed. Included in each kit is a selection of our most popular standard plugs, jacks and binding posts. Use for making patch cords, designing prototypes, or other applications where banana plugs, banana jacks, or binding posts are required in the lab and/or design work. Kits come in tough polyethylene plastic stackable nine drawer cabinets. This kit con-

tains an assortment of banana plugs, jacks, and binding posts. Includes both insulated and uninsulated types, Rib-Loc® types, and UL type binding posts.

PART NO.

108-2299-001

Johnson JCM subminiature coaxial connectors give you a low-cost, high-grade alternative to SMA, SMB or SMC type connectors. All can be interchanged and intermated with their MIL-spec counterparts. All give you virtually the same electrical, mechanical and environmental performance. Yet all can save you up to half the cost of their SMA, SMB or SMC equivalents.

JCM connectors are available in gold or nickel plated versions with beryllium copper and half-hard brass contacts. JCM bodies are screw-machined from half-hard brass. JCM-B's are also available in die cast zinc.

ORDERING INFORMATION

For a numerical index of the complete product line, refer to the end of the catalog, starting on page 113.

Each connector listing in this section includes mechanical drawings and part numbering information. Electrical, mechanical, environmental and material specifications are listed at the beginning of each connector sub-section.

TO ORDER

Orders for fewer than 1,000 pieces may be purchased through Johnson's network of over 200 distributors. To obtain the name of your local distributor, call Component Sales at 1-800-247-8256. For orders over 1,000 pieces or if special features are required, contact the factory at 1-800-247-8256 or write to Component Marketing Manager, P.O. Box 59089, Minneapolis, MN 55459-0089.

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SPECIFICATIONS

ELECTRICAL RATINGS

Impedance: 50 ohms
Frequency Range: 0-8 GHz
VSWR: See curve
Working Voltage: 335 Vrms maximum at sea level with RG-58/U cable †
Dielectric Withstanding Voltage: 1000 Vrms minimum at sea level with RG-58/U cable †
Corona Level at 70,000 Feet with RG-58/U cable: 250 volts min.
Insertion Loss: (dB max)
 Straight Connector RG-58/U cable — $.06\sqrt{f}$ (GHz)
 RA Connector RG-58/U cable — $.15\sqrt{f}$ (GHz)

Insulation Resistance: 5000 Meg Ohms minimum

Contact Resistance:

	Initial	Milliohms Max After Environmental
<i>Straight Connector (Gold plated)</i>		
Center contact	3.0	4.0
Outer contact	2.0	N/A
Braid to Body	0.5	N/A

RA connector (Gold plated)

Center contact	4.0	6.0
Outer contact	2.0	N/A
Braid to body	0.5	N/A

RF Leakage at 2 to 3 GHz: -60 dB minimum

RF high potential withstanding voltage at 5 MHz with RG-58/U cable: 670 Vrms †

MECHANICAL RATINGS

Engagement Design: MIL-C-39012, Series SMA
Engagement/Disengagement Force: 2 inch-pound maximum
Mating Torque: 3 to 4 inch-pound
Coupling Proof Torque: 6 inch-pound minimum
Coupling Nut Retention: 40 lbs. minimum

Contact Retention: 6 lbs. minimum axial force (captivated contacts)

Cable Acceptability: Group 1, Group 2, Group 3, Group 4

Cable Retention: Group 1 – 10 lbs. Group 3 – 40 lbs.
Group 2 – 20 lbs. Group 4 – 45 lbs.

Durability: 500 cycles minimum

ENVIRONMENTAL RATINGS (Meets or exceeds the applicable paragraph of Mil-C-39012)

Thermal Shock: MIL-STD-202, Method 107, Condition B.

Corrosion: MIL-STD-202, Method 101, Condition B.

Shock: MIL-STD-202, Method 213, Condition I.

Vibration: MIL-STD-202, Method 204, Condition D.

Moisture Resistance: MIL-STD-202, Method 106.

MATERIAL SPECIFICATIONS

Contacts: Male - Brass per QQ-B-626
Female - Beryllium copper per QQ-C-530

Insulators: TFE Fluorocarbon per L-P-403

Expansion Caps: Brass per QQ-B-613

Crimp Sleeve: Copper per WW-T-799

Bodies & Mounting Hardware: Bronze per QQ-B-626

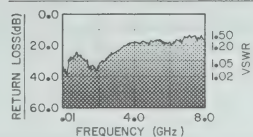
Finish: Center Contacts – Gold per MIL-G-45204 .00003" min.

Bodies & Mounting Hardware – Gold per MIL-G-45204 .00001" min. or Nickel per QQ-N-290

Group 1	Nominal	Group 2	Nominal
RG-178/U	0.079" O.D.	RG-161/U	0.100" O.D.
RG-196/U	0.080" O.D.	RG-174/U	0.100" O.D.
		RG-179/U	0.100" O.D.
		RG-187/U	0.110" O.D.
		RG-188/U	0.110" O.D.
		RG-316/U	0.102" O.D.

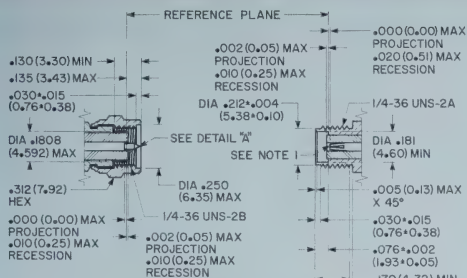
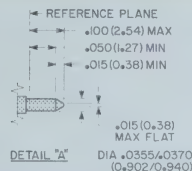
Group 3	Nominal	Group 4	Nominal
RG-58/U	0.195" O.D.	RG-55/U	0.206" O.D.
RG-141/U	0.190" O.D.	RG-142/U	0.206" O.D.
RG-303/U	0.195" O.D.	RG-223/U	0.195" O.D.
		RG-400/U	0.216" O.D.

TYP. RETURN LOSS AND VSWR FOR JCM CONNECTORS 142-221/233/261/273 -001



NOTES:

1. ID TO MEET VSWR, CONTACT RESISTANCE AND INSERTION WITHDRAWAL FORCES WHEN MATED WITH A DIA. .0355/.0370 (0.902/0.940) MALE PIN.



MATING ENGAGEMENT FOR JCM-A SERIES MATES WITH SMA SERIES PER MIL-C-39012

SPECIFICATIONS

ELECTRICAL RATINGS

Impedance: 50 ohms
Frequency Range: 0-18 GHz
VSWR: As noted
Working Voltage: 500 Vrms maximum at sea level except as noted
Dielectric Withstanding Voltage:
 .086 – 1000 Vrms minimum at sea level
 .141 – 1500 Vrms minimum at sea level
Corona Level at 70,000 Feet: 375 volts minimum
Insertion Loss (dB max):
 Straight Connector — .03 $\sqrt{f}$ (GHz)

Insulation Resistance: 5000 megohms minimum

Contact Resistance:
except as noted

Milliohms Max

Initial After Environmental

Straight Connector (Gold plated)

Center contact*	3.0	4.0
Outer conductor	2.0	N/A
Body to Cable	0.5	N/A

RF Leakage at 2 to 3 GHz: -90 dB minimum

RF high potential withstanding voltage at 5 MHz: 1000 Vrms †

* N/A if center conductor used as contact.

MECHANICAL RATINGS

Engagement Design: MIL-C-39012, Series SMA
Engagement/Disengagement Force: 2 inch-pound maximum
Mating Torque: 7 to 10 inch-pound
Coupling Proof Torque: 15 inch-pound minimum
Coupling Nut Retention: 60 lbs. minimum
Cable Acceptability: .086" & .141" Semi-Rigid

Cable Retention: .086" Semi-Rigid – 30 lbs. min. axial force,
16 inch-ounce min. torque
 .141" Semi-Rigid – 60 lbs. min. axial force,
55 inch-ounce min. torque

Durability: 500 cycles minimum

ENVIRONMENTAL RATINGS (Meets or exceeds the applicable paragraph of MIL-C-39012)

Thermal Shock: MIL-STD-202, Method 107, Condition B.

Corrosion: MIL-STD-202, Method 101, Condition B.

Shock: MIL-STD-202, Method 213, Condition I.

Vibration: MIL-STD-202, Method 204, Condition D.

Moisture Resistance: MIL-STD-202, Method 106.

MATERIAL SPECIFICATIONS

Contacts: Male – Brass per QQ-B-626

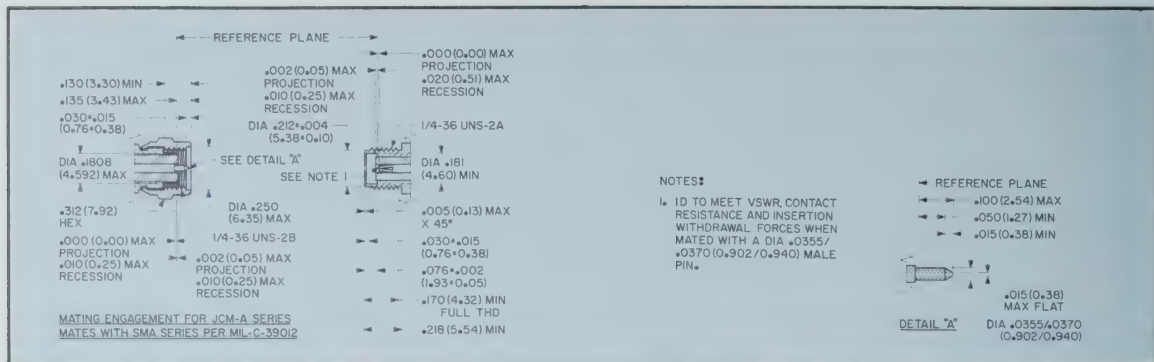
Female – Beryllium copper per QQ-C-530

Insulators: TFE fluorocarbon per L-P-403

Bodies & Mounting Hardware: Bronze per QQ-B-626

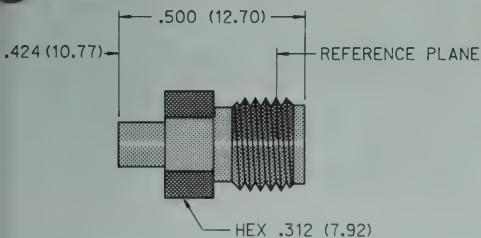
Finish: Center Contacts – Gold per MIL-G-45204 (gold pl. .00003" min. over nickel pl. .00005 min. over copper pl. .00005 min.)

Bodies & Mounting Hardware – Gold per MIL-G-45204 (gold pl. .00001" over nickel pl. .00005 min. over copper pl. .00005 min.) or Nickel per QQ-N-290 (nickel pl. .0001 min. over copper pl. .00005 min.)



inches (millimeters)
customer drawings available upon request

Straight Cabled Jack

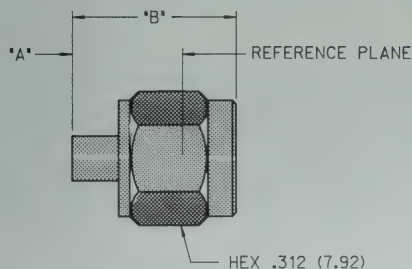


JCM-A				
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED	VSWR
.086 Semi-Rigid	RG-405	*142-0593-001	*142-0593-006	1.07 + .008f max. (f in GHz)
.141 Semi-Rigid	RG-402	142-0594-001	142-0594-006	1.05 + .008f max. (f in GHz)

Assembly instructions Page 51.

* Working Voltage 335 Vrms min. at sea level.

Straight Cabled Plug

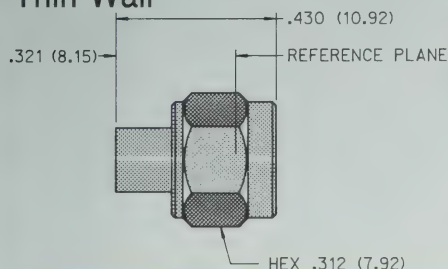


JCM-A				
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED	VSWR
.086 Semi-Rigid "A" = .296 (7.52) "B" = .405 (10.29)	RG-405	*142-0693-001	*142-0693-006	1.07 + .008f max. (f in GHz)
.141 Semi-Rigid "A" = .331 (8.41) "B" = .440 (11.18)	RG-402	142-0694-001	142-0694-006	1.05 + .008f max. (f in GHz)

Assembly instructions Page 51.

* Working Voltage 335 Vrms min. at sea level.

Straight Cabled Plug — thread-on nut Thin Wall

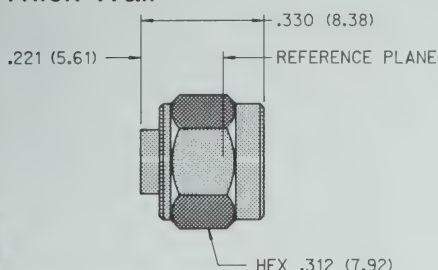


JCM-A				
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED	VSWR
.141 Semi-Rigid	RG-402	142-0694-011	142-0694-016	1.035 + .005f max. (f in GHz)

Assembly instructions Page 52.

Center conductor of cable serves as contact.

Straight Cabled Plug — slide-on nut Thick Wall

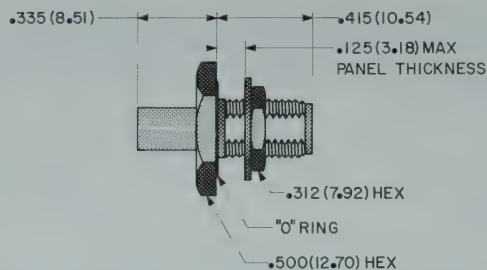


JCM-A				
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED	VSWR
.141 Semi-Rigid	RG-402	142-0694-021	142-0694-026	1.035 + .005f max. (f in GHz)

Assembly instructions Page 52.

Center conductor of cable serves as contact.

Semi-Rigid Cable — Straight Bulkhead Jack

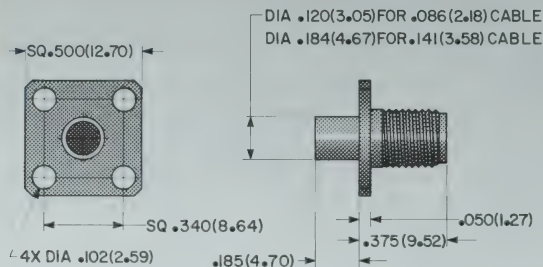


JCM-A			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.141" (3.58mm)	RG-402	142-0285-001	142-0285-006
.086" (2.18mm)	RG-405	142-0285-501	142-0285-506

Assembly instructions Page 53

Mounting hole layout Fig. 1 Page 60

Semi-Rigid Cable — Flange Mount Jack

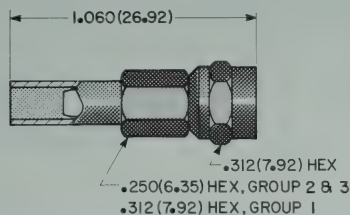


JCM-A			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.141" (3.58mm)	RG-402	142-0286-001	142-0286-006
.086" (2.18mm)	RG-405	142-0286-501	142-0286-506

Assembly instructions Page 53

inches (millimeters)
customer drawings available upon request

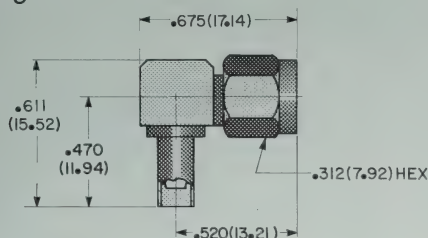
Flexible Cable — Straight Crimp Type Plug



JCM-A			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	142-0301-001	142-0301-006
Group 2	RG-161/U, 174, 179, 187, 188, 316	142-0321-001	142-0321-006
Group 3	RG-58/U, 141	142-0361-001	142-0361-006

Assembly instructions Page 54 and 55

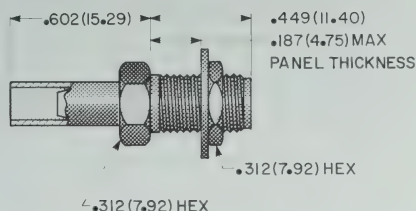
Flexible Cable — Right Angle Crimp Type Plug



JCM-A			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	142-0402-101	142-0402-106
Group 2	RG-161/U, 174, 179, 187, 188, 316	142-0403-101	142-0403-106
Group 3	RG-58/U, 141, 303	142-0407-101	142-0407-106

Assembly instructions Page 55

Flexible Cable — Straight Crimp Type Bulkhead Jack



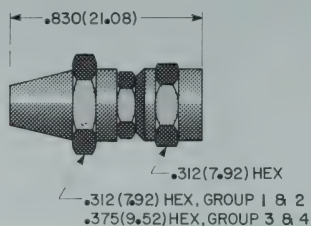
JCM-A			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	142-0311-001	142-0311-006
Group 2	RG-161/U, 174, 179, 187, 188, 316	142-0331-001	142-0331-006
Group 3	RG-58/U, 141, 303	142-0371-001	142-0371-006

Assembly instructions Page 54 and 55

Mounts in .258 (6.55) diameter round hole

Flexible Cable — Straight Clamp Type Plug

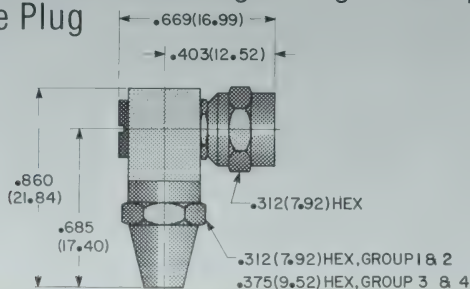
inches (millimeters)
customer drawings available upon request



JCM-A			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	142-0201-001	142-0201-006
Group 2	RG-161/U, 174, 179, 187, 188, 316	142-0221-001	142-0221-006
Group 3	RG-58/U, 141,	142-0261-001	142-0261-006
Group 4	RG-55/U, 142, 223, 400	142-0261-001	142-0261-006

Assembly instructions Page 57

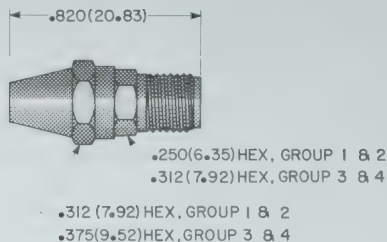
Flexible Cable — Right Angle Clamp Type Plug



JCM-A			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	142-0202-001	142-0202-006
Group 2	RG-161/U, 174, 179, 187, 188, 316	142-0222-001	142-0222-006
Group 3	RG-58/U, 141, 303	142-0262-001	142-0262-006
Group 4	RG-55/U, 142, 223, 400	142-0262-001	142-0262-006

Assembly instructions Page 57

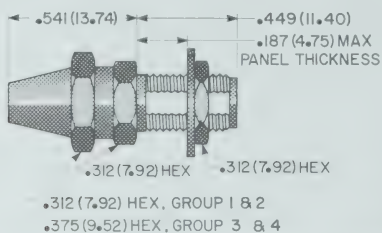
Flexible Cable — Straight Clamp Type Jack



JCM-A			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	142-0211-001	142-0211-006
Group 2	RG-161/U, 174, 179, 187, 188, 316	142-0231-001	142-0231-006
Group 3	RG-58/U, 141, 303	142-0271-001	142-0271-006
Group 4	RG-55/U, 142, 223, 400	142-0271-001	142-0271-006

Assembly instructions Page 57

Flexible Cable — Straight Clamp Type Bulkhead Jack

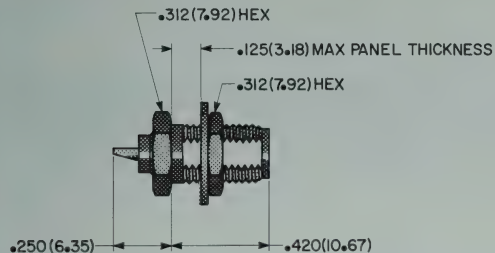


JCM-A			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	142-0213-001	142-0213-006
Group 2	RG-161/U, 174, 179, 187, 188, 316	142-0233-001	142-0233-006
Group 3	RG-58/U, 141, 303	142-0273-001	142-0273-006
Group 4	RG-55/U, 142, 223, 400	142-0273-001	142-0273-006

Assembly instructions Page 57

Mounting hole layout Fig. 1 Page 60

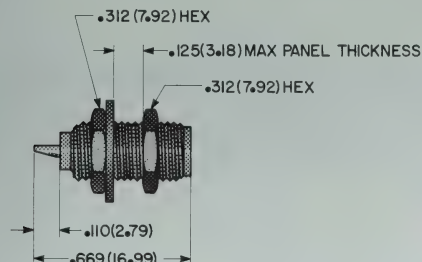
Rear Mount Bulkhead Jack Receptacle



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0294-001	142-0294-006

Mounting hole layout Fig. 1 Page 60

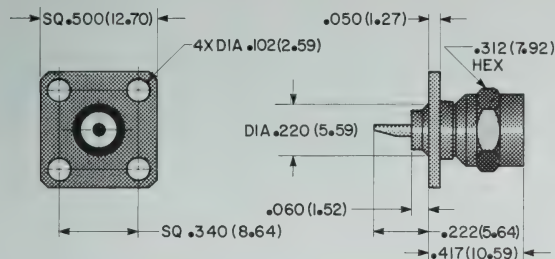
Bulkhead Jack Receptacle



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0293-001	142-0293-006

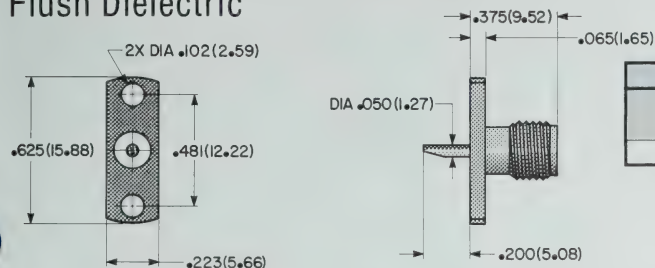
Mounts in .258 (6.55) diameter round hole

4-Hole Flange Mount Plug Receptacle



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0287-001	142-0287-006

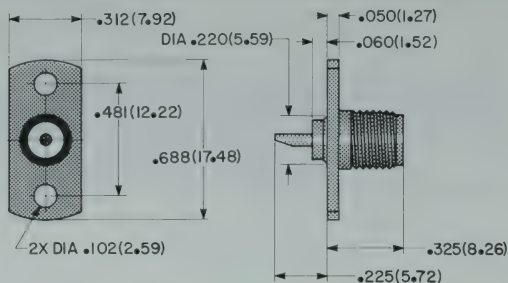
2-Hole Flange Mount Jack Receptacle Flush Dielectric



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0701-621	142-0701-626

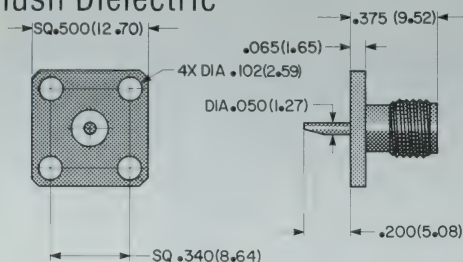
inches (millimeters)
customer drawings available upon request

2-Hole Flange Mount Jack Receptacle



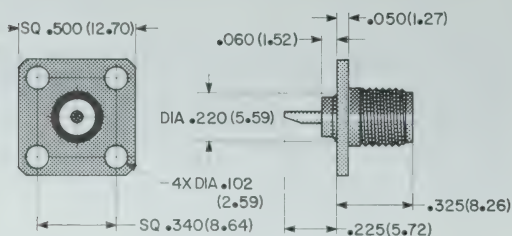
JCM-A	
GOLD PLATED	NICKEL PLATED
142-0296-001	142-0296-006

4-Hole Flange Mount Jack Receptacle Flush Dielectric



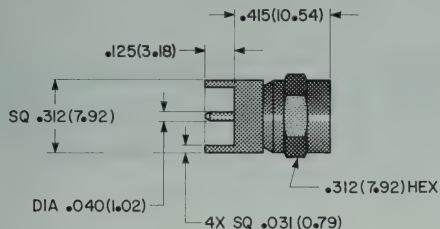
JCM-A	
GOLD PLATED	NICKEL PLATED
142-0701-631	142-0701-636

4-Hole Flange Mount Jack Receptacle



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0297-001	142-0297-006

.281" PC Mount Plug Receptacle

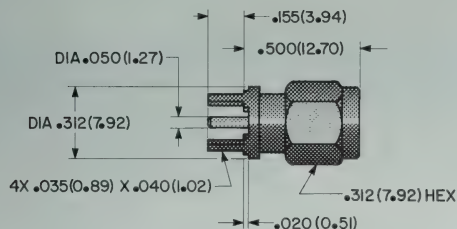


JCM-A

GOLD PLATED	NICKEL PLATED
142-0300-001	142-0300-006

Mounting hole layout Fig. 3 Page 60

.200" PC Mount Plug Receptacle

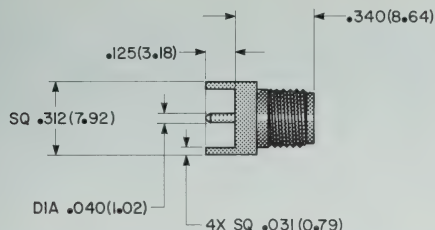


JCM-A

GOLD PLATED	NICKEL PLATED
142-0801-201	142-0801-206

Mounting hole layout Fig. 2 Page 60

.281" PC Mount Jack Receptacle

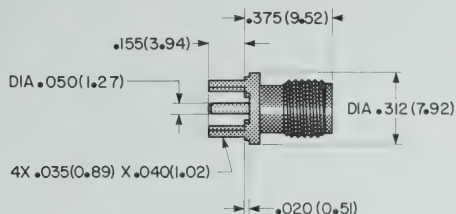


JCM-A

GOLD PLATED	NICKEL PLATED
142-0298-001	142-0298-006

Mounting hole layout Fig. 3 Page 60

.200" PC Mount Jack Receptacle

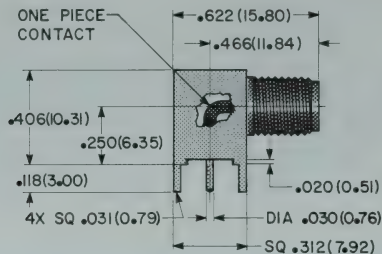


JCM-A

GOLD PLATED	NICKEL PLATED
142-0701-201	142-0701-206

Mounting hole layout Fig. 2 Page 60

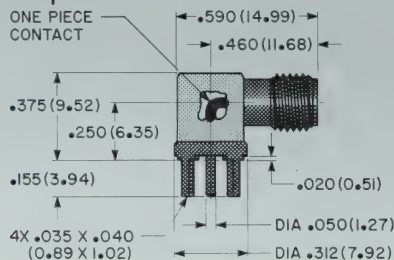
.281" Right Angle PC Mount Jack Receptacle



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0299-001	142-0299-006

Mounting hole layout Fig. 3 Page 60

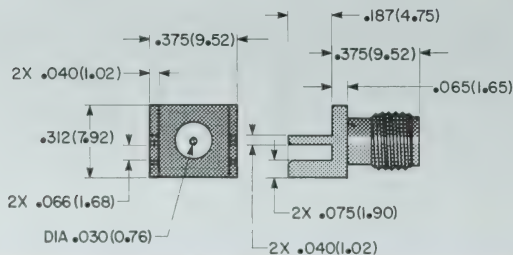
.200" Right Angle PC Mount Jack Receptacle



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0701-301	142-0701-306

Mounting hole layout Fig. 2 Page 60

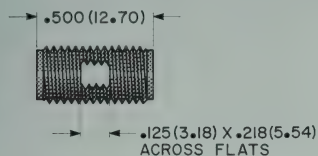
End Launch PC Mount Jack Receptacle For .062" Thick Board



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0701-801	142-0701-806

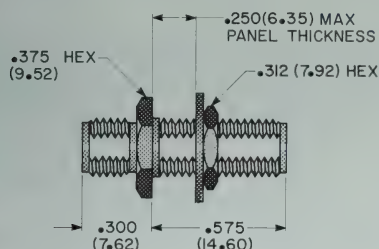
Application detail Page 68

In-Series Adapter Jack - Jack



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0901-801	142-0901-806

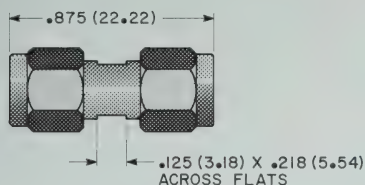
In-Series Adapter Jack - Bulkhead Jack



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0901-401	142-0901-406

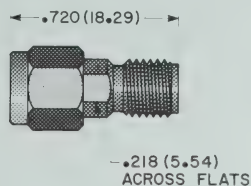
Mounting hole layout Fig. 1 Page 60

In-Series Adapter Plug - Plug



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0901-811	142-0901-816

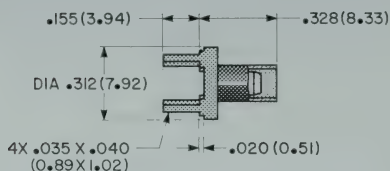
In-Series Adapter Plug - Jack



JCM-A	
GOLD PLATED	NICKEL PLATED
142-0901-821	142-0901-826

inches (millimeters)
customer drawings available upon request

Flexible Cable — Straight Crimp Type PC Mount Cable Termination



CABLE TERMINATION			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	142-0002-201	142-0002-206
Group 2	RG-161/U, 174, 179, 187, 188, 316	142-0003-201	142-0003-206
Group 3	RG-58/U, 141, 303	142-0007-201	142-0007-206

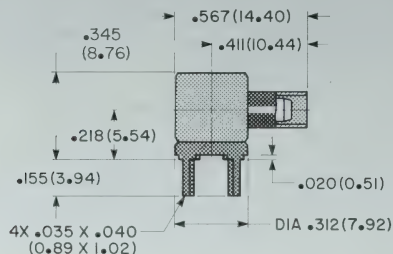
Assembly instructions Page 56

Application detail Page 68

Mounting hole layout Cable Groups 1 and 2 Fig. 4 Page 60

Group 3 Fig. 5 Page 60

Flexible Cable — Right Angle Crimp Type PC Mount Cable Termination

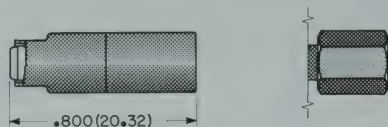


CABLE TERMINATION			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	142-0002-301	142-0002-306
Group 2	RG-161/U, 174, 179, 187, 188, 316	142-0003-301	142-0003-306

Assembly instructions Page 56

Application detail Page 68

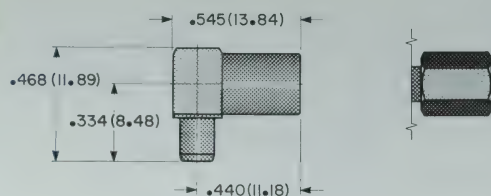
Mounting hole layout Cable Groups 1 and 2 Fig. 4 Page 60

**JOHNSON®****JCM-B — JCM-C COAXIAL CONNECTORS**
(SMB) (SMC)**SEMI-RIGID SOLDER TYPE****Semi-Rigid Cable — Straight Plug**inches (millimeters)
customer drawings available upon request**JCM-B****JCM-C**

JCM-B			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086" (2.18mm)	RG-405	131-3693-001	131-3693-016

JCM-C			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086" (2.18mm)	RG-405	131-6693-001	131-6693-006

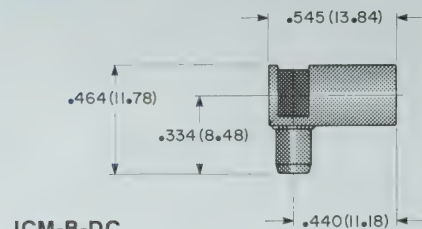
Assembly instructions Page 58

Semi-Rigid Cable — Right Angle Plug**JCM-B****JCM-C**

JCM-B			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086" (2.18mm)	RG-405	131-3693-101	131-3693-116

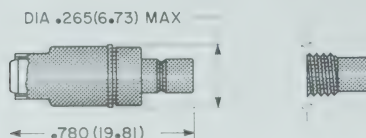
JCM-C			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086" (2.18mm)	RG-405	131-6693-101	131-6693-106

Assembly instructions Page 58

Semi-Rigid Cable — Right Angle Plug
DIE CAST**JCM-B-DC**

JCM-B-DIE CAST			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086" (2.18mm)	RG-405	131-1693-101	131-1693-116

Assembly instructions Page 58

Semi-Rigid Cable — Straight Jack**JCM-B****JCM-C**

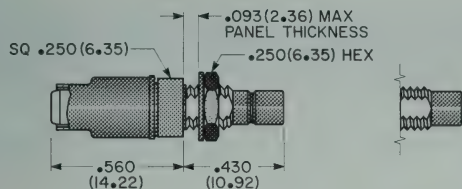
JCM-B			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086" (2.18mm)	RG-405	131-3593-001	131-3593-006

JCM-C			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086" (2.18mm)	RG-405	131-6593-001	131-6593-006

Assembly instructions Page 58

Semi-Rigid Cable — Straight Bulkhead Jack

inches (millimeters)
customer drawings available upon request



JCM-B

JCM-C

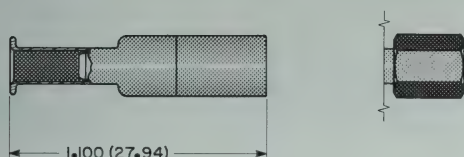
JCM-B			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086" (2.18mm)	RG-405	131-3593-401	131-3593-406

JCM-C			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086" (2.18mm)	RG-405	131-6593-401	131-6593-406

Assembly instructions Page 58

Mounting hole layout Fig. 6 Page 60

Flexible Cable — Straight Crimp Type Plug



JCM-B

JCM-C

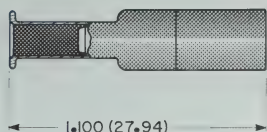
JCM-B			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	131-3402-001	131-3402-016
Group 2	RG-161/U, 174, 179, 187, 188, 316	131-3403-001	131-3403-016

JCM-C			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	131-6402-001	131-6402-006
Group 2	RG-161/U, 174, 179, 187, 188, 316	131-6403-001	131-6403-006

Assembly instructions Page 59

Flexible Cable — Straight Crimp Type Plug

DIE CAST

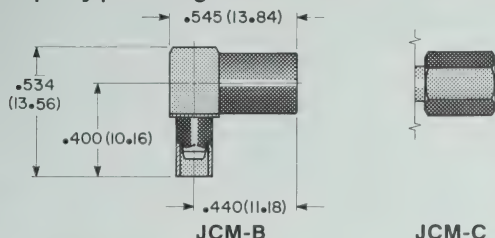


JCM-B-DC

JCM-B-DIE CAST			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 2	RG-161/U, 174, 179, 187, 188, 316	131-1403-001	131-1403-016

Assembly instructions Page 59

Flexible Cable — Right Angle Crimp Type Plug



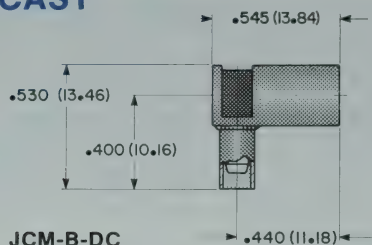
JCM-B

JCM-C

JCM-B			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	131-3402-101	131-3402-116
Group 2	RG-161/U, 174, 179, 187, 188, 316	131-3403-101	131-3403-116

JCM-C			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	131-6402-101	131-6402-106
Group 2	RG-161/U, 174, 179, 187, 188, 316	131-6403-101	131-6403-106

Assembly instructions Page 59

**JOHNSON®****JCM-B — JCM-C COAXIAL CONNECTORS**
(SMB) (SMC) **FLEXIBLE CABLE**inches (millimeters)
customer drawings available upon request**Flexible Cable — Right Angle Crimp Type Plug**
DIE CAST

JCM-B-DIE CAST			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	131-1402-101	131-1402-116
Group 2	RG-161/U, 174, 179, 187, 188, 316	131-1403-101	131-1403-116

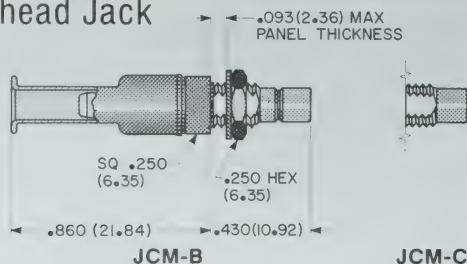
Assembly instructions Page 59

Flexible Cable — Straight Crimp Type Jack

JCM-B			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	131-3302-001	131-3302-006
Group 2	RG-161/U, 174, 179, 187, 188, 316	131-3303-001	131-3303-006

JCM-C			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	131-6302-001	131-6302-006
Group 2	RG-161/U, 174, 179, 187, 188, 316	131-6303-001	131-6303-006

Assembly instructions Page 59

Flexible Cable — Straight Crimp Type Bulkhead Jack

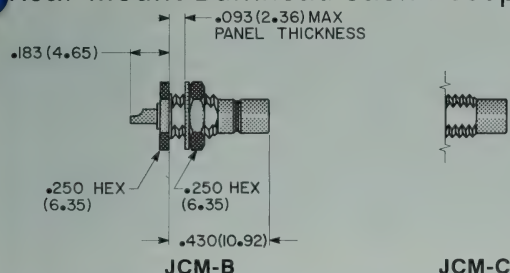
JCM-B			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	131-3302-401	131-3302-406
Group 2	RG-161/U, 174, 179, 187, 188, 316	131-3303-401	131-3303-406

JCM-C			
CABLE GROUP	CABLE TYPE	GOLD PLATED	NICKEL PLATED
Group 1	RG-178/U, 196	131-6302-401	131-6302-406
Group 2	RG-161/U, 174, 179, 187, 188, 316	131-6303-401	131-6303-406

Assembly instructions Page 59

Mounting hole layout Fig. 6 Page 60

Rear Mount Bulkhead Jack Receptacle

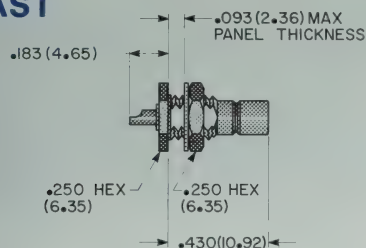


JCM-B	
GOLD PLATED	NICKEL PLATED
131-3701-401	131-3701-406

JCM-C	
GOLD PLATED	NICKEL PLATED
131-6701-401	131-6701-406

Mounting hole layout Fig. 6 Page 60

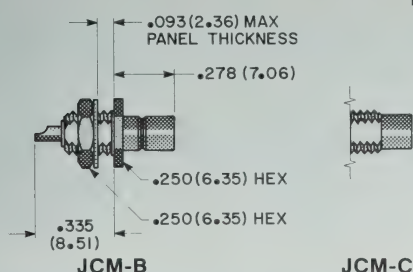
Rear Mount Bulkhead Jack Receptacle DIE CAST



JCM-B-DIE CAST	
GOLD PLATED	NICKEL PLATED
131-1701-401	131-1701-406

Mounting hole layout Fig. 6 Page 60

Front Mount Bulkhead Jack Receptacle

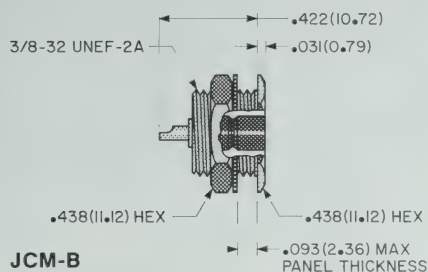


JCM-B	
GOLD PLATED	NICKEL PLATED
131-3701-411	131-3701-416

JCM-C	
GOLD PLATED	NICKEL PLATED
131-6701-411	131-6701-416

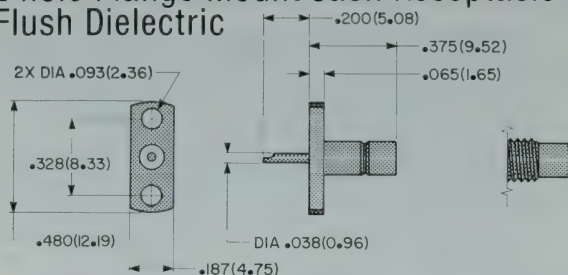
Mounting hole layout Fig. 6 Page 60

Bulkhead Recessed Jack Receptacle



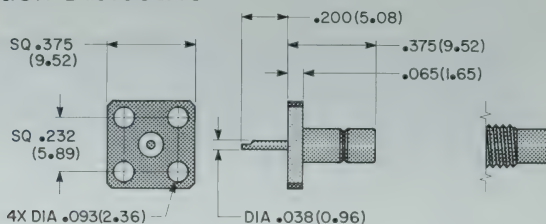
JCM-B	
GOLD PLATED	NICKEL PLATED
131-3701-421	131-3701-426

Mounting hole layout Fig. 7 Page 60

**JOHNSON®****JCM-B — JCM-C COAXIAL CONNECTORS****(SMB)****(SMC)****FLANGE MOUNT — PC MOUNT**inches (millimeters)
customer drawings available upon request**2-hole Flange Mount Jack Receptacle
Flush Dielectric****JCM-B****JCM-C**

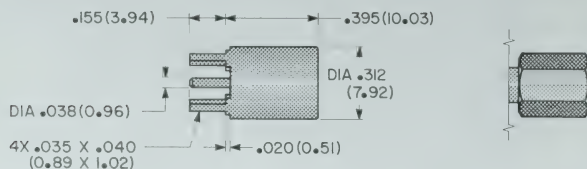
JCM-B	
GOLD PLATED	NICKEL PLATED
131-3701-621	131-3701-626

JCM-C	
GOLD PLATED	NICKEL PLATED
131-6701-621	131-6701-626

**4-hole Flange Mount Jack Receptacle
Flush Dielectric****JCM-B****JCM-C**

JCM-B	
GOLD PLATED	NICKEL PLATED
131-3701-631	131-3701-636

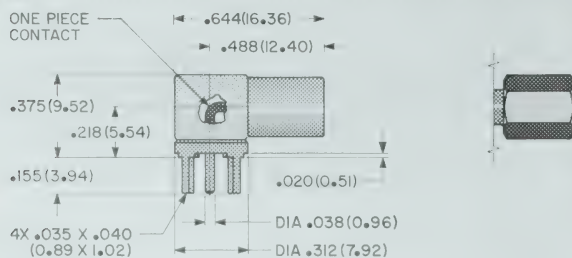
JCM-C	
GOLD PLATED	NICKEL PLATED
131-6701-631	131-6701-636

Straight PC Mount Plug Receptacle**JCM-B****JCM-C**

JCM-B	
GOLD PLATED	NICKEL PLATED
131-3801-201	131-3801-216

JCM-C	
GOLD PLATED	NICKEL PLATED
131-6801-201	131-6801-206

Mounting hole layout Fig. 5 Page 60

Right Angle PC Mount Plug Receptacle**JCM-B****JCM-C**

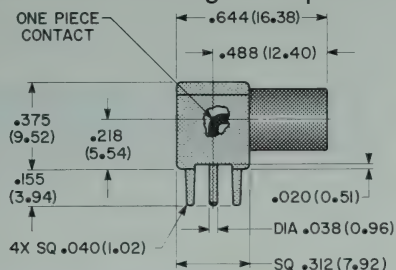
JCM-B	
GOLD PLATED	NICKEL PLATED
131-3801-301	131-3801-316

JCM-C	
GOLD PLATED	NICKEL PLATED
131-6801-301	131-6801-306

Mounting hole layout Fig. 5 Page 60

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Right Angle PC Mount Plug Receptacle DIE CAST



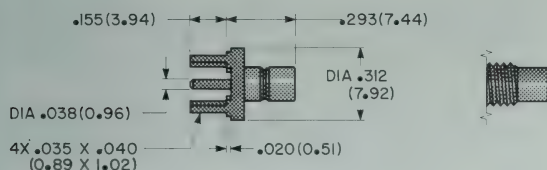
JCM-B-DC

JCM-B-DIE CAST

GOLD PLATED	NICKEL PLATED
131-1801-301	131-1801-316

Mounting hole layout Fig. 5 Page 60

Straight PC Mount Jack Receptacle



JCM-B

JCM-C

JCM-B

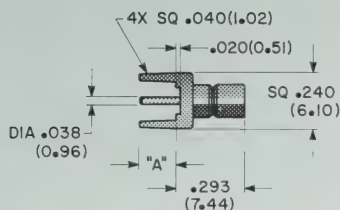
GOLD PLATED	NICKEL PLATED
131-3701-201	131-3701-206

JCM-C

GOLD PLATED	NICKEL PLATED
131-6701-201	131-6701-206

Mounting hole layout Fig. 5 Page 60

Straight PC Mount Jack Receptacle DIE CAST



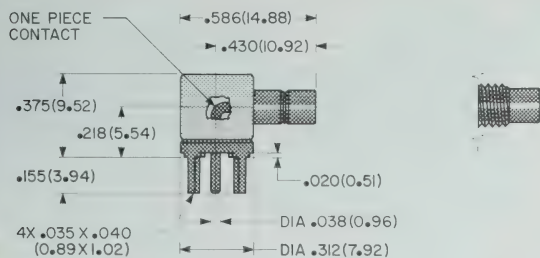
JCM-B-DC

JCM-B-DIE CAST

LEG LENGTH DIM. "A"	GOLD PLATED	NICKEL PLATED
.155" (3.94mm)	131-1701-201	131-1701-206
.095" (2.41mm)	131-1701-211	131-1701-216

Mounting hole layout Fig. 5 Page 60

Right Angle PC Mount Jack Receptacle



JCM-B

JCM-C

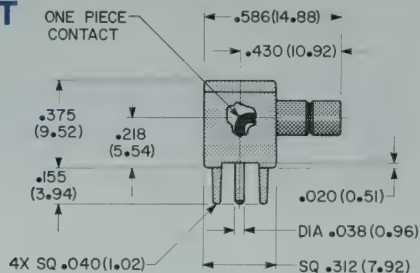
JCM-B

GOLD PLATED	NICKEL PLATED
131-3701-301	131-3701-306

JCM-C

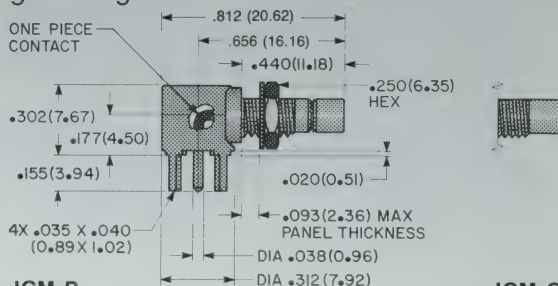
GOLD PLATED	NICKEL PLATED
131-6701-301	131-6701-306

Mounting hole layout Fig. 5 Page 60

**JOHNSON®****JCM-B — JCM-C COAXIAL CONNECTORS**
(SMB) (SMC) PC MOUNT — IN-SERIES ADAPTERSinches (millimeters)
customer drawings available upon request**Right Angle PC Mount Jack Receptacle****DIE CAST****JCM-B-DC****JCM-B-DIE CAST**

GOLD PLATED	NICKEL PLATED
131-1701-301	131-1701-306

Mounting hole layout Fig. 5 Page 60

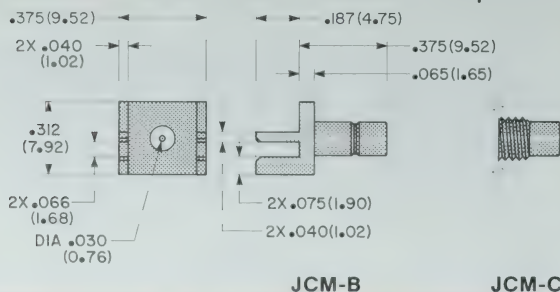
Right Angle PC Mount Bulkhead Jack Receptacle**JCM-B****JCM-C****JCM-B**

GOLD PLATED	NICKEL PLATED
131-3701-341	131-3701-346

JCM-C

GOLD PLATED	NICKEL PLATED
131-6701-341	131-6701-346

Mounting hole layout Fig. 5 & 6 Page 60

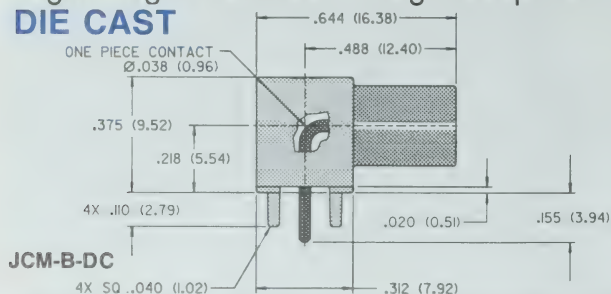
PC Mount End Launch Jack Receptacle For .062" Thick Board**JCM-B****JCM-C****JCM-B**

GOLD PLATED	NICKEL PLATED
131-3701-801	131-3701-806

JCM-C

GOLD PLATED	NICKEL PLATED
131-6701-801	131-6701-806

Application detail Page 68

Right Angle PC Mount Plug Receptacle**DIE CAST****JCM-B-DC****JCM-B-DIE CAST**

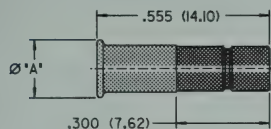
GOLD PLATED	NICKEL PLATED
131-1801-371	131-1801-376

Mounting hole layout Fig. 5 Page 60

Flexible Cable — Straight Crimp Type Jack

inches (millimeters)
customer drawings available upon request

DIE CAST

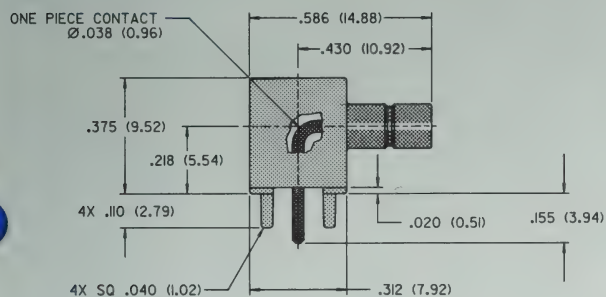


JCM-B-DC

JCM-B-DIE CAST			
CABLE TYPE	GOLD PLATED	NICKEL PLATED	DIAMETER "A"
RG-161/U, 174/U, 179/U, 187/U, 188/U, 316/U	131-1303-011	131-1303-016	.185 (4.70)
RG-188/U, Double Shield, RG-316/U Double Shield	131-1304-011	131-1304-016	.195 (4.95)

Right Angle PC Mount Jack Receptacle

DIE CAST

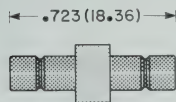


JCM-B-DC

JCM-B-DIE CAST	
GOLD PLATED	NICKEL PLATED
131-1701-371	131-1701-376

Mounting hole layout Fig. 5 Page 60

In-Series Adapter Jack - Jack



JCM-B

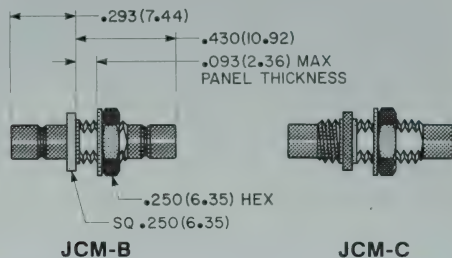


JCM-C

JCM-B	
GOLD PLATED	NICKEL PLATED
131-3901-801	131-3901-806

JCM-C	
GOLD PLATED	NICKEL PLATED
131-6901-801	131-6901-806

**In-Series Adapter
Jack - Bulkhead Jack**

 inches (millimeters)
 customer drawings available upon request


JCM-B	
GOLD PLATED	NICKEL PLATED
131-3901-401	131-3901-406

JCM-C	
GOLD PLATED	NICKEL PLATED
131-6901-401	131-6901-406

Mounting hole layout Fig. 6 Page 60

inches (millimeters)

ELECTRICAL RATINGS

Impedance: 29 ohms
Frequency Range: 0 - 2 GHz
Working Voltage: 300 Vrms †
Dielectric Withstanding Voltage: 2000 VDC †
Contact Resistance: Center contact: 6 milliohms
 Outer conductor: 2.5 milliohms

MECHANICAL RATINGS

Insertion Force: Inner conductor: 32 oz. max. 2 oz. min.
 Outer conductor: 48 oz. max. 6 oz. min.

Durability: 250 cycles

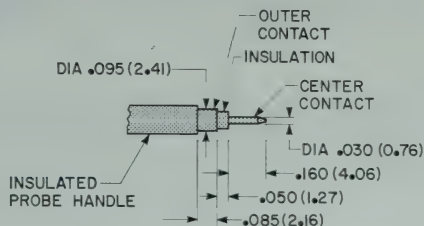
ENVIRONMENTAL RATINGS

Temperature Range: -65° C to +85° C
Corrosion: Salt spray, 24 hours
Shock: Method 213, Test Condition B, MIL-STD-202
Vibration: Method 204, Test Condition B, MIL-STD-202

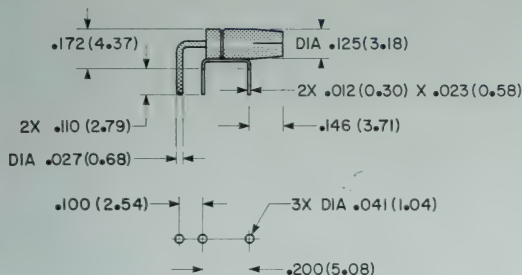
MATERIAL SPECIFICATIONS

Contact: Beryllium copper per QQ-C-533/530
Insulator Material: TFE Fluorocarbon per L-P-403
Finish: Center Contact and Body: Bright Tin

SHIELDED TEST JACK INTERFACE — TYPICAL PROBE TYPE



HORIZONTAL

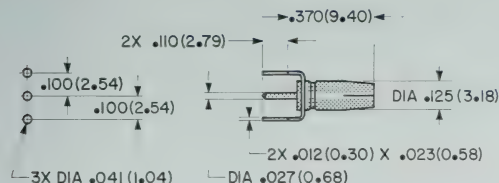


BRIGHT TIN PLATED

129-0701-301

Application detail Page 68

VERTICAL



BRIGHT TIN PLATED

129-0701-201

Application detail Page 68

CONNECTOR KIT

JCM-A COAXIAL CONNECTOR KIT



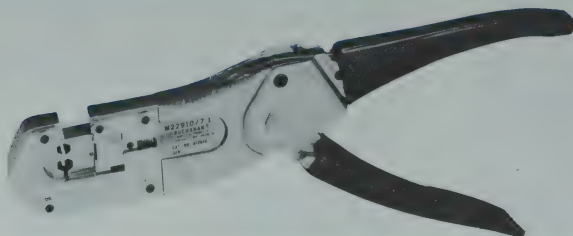
Included in this kit are nine of the most popular types of JCM miniature coaxial connectors to aid in lab design work or field replacement service. Assembly instructions covering three cables groups are enclosed for each connector and no special tools are required. JCM-A connectors interface with SMA connectors and have a frequency response of 0-8 GHz. They are designed as a low

cost coaxial connection for applications not requiring the performance of the SMA military specification. Nickel plated versions are also available, although not in this kit, where lower cost applications are desired. Comes in a handy nine drawer plastic cabinet.

PART NO. 142-0000-001

CONTACT FACTORY FOR INFORMATION ON JCM-B (SMB) AND JCM-C (SMC) KITS.

E.F. JOHNSON COMPANY, Component Products, P.O. Box 59089, Minneapolis, Minnesota 55459-0089
 OUTSTATE TOLL FREE: 1-800-247-8256 IN MINN. CALL: 1-507-835-6222 TLX: 290470 FAX: 1-507-835-8356

**JOHNSON®****COAXIAL CONNECTOR ASSEMBLY TOOLS****Hand Crimp Tools**

Precision Buchanan hand crimping tool makes cable assembly fast and easy. Crimping tool features interchangeable steel dies for Cable Groups 1, 2, and 3. Ratchet action of tool controls crimping operation for precise uniform crimps.

RF CONNECTORS

CONNECTOR TYPE	CABLE GROUP	CABLE TYPE	USE DIE SET PART NUMBER	CRIMP DIMENSIONS (INCHES)	 DIAGRAM
JCM-A (SMA)	1	RG-178/U RG196/U	142-0000-922	Hex = .105 Width = .40	.105 / .160
JCM-B (SMB) / JCM-C (SMC)			142-0000-926	Hex = .105 Width = .40	.105 / .128
JCM-A (SMA) (EXCEPT PART NUMBERS BELOW)	2	RG-161/U RG-174/U RG-179/U RG-187/U RG-188/U RG-316/U	142-0000-922	Hex = .160 Width = .40	.105 / .160
JCM-A (SMA) 142-0003-301/306 142-0403-101/106 142-0303-001/006 142-0003-201/202			142-0000-926	Hex = .128 Width = .40	.105 / .128
JCM-B (SMB) / JCM-C (SMC)			142-0000-926	Hex = .128 Width = .40	.105 / .128
JCM-A (SMA)	3	RG-58/U RG-141/U RG-303/U	142-0000-923	Hex = .213 Width = .40	.213 / .255

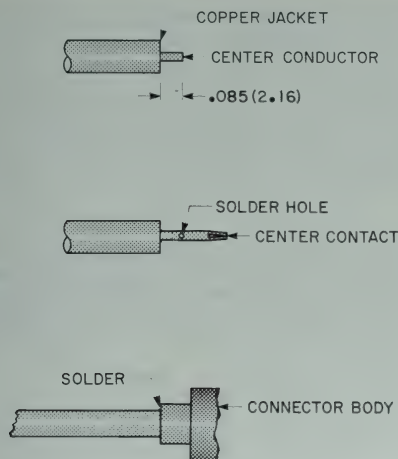
Ordering Information for Crimping Tools

Part Number	Description	Buchanan Equivalent
142-0000-920	Frame Only	612648
142-0000-922	Double Hex Die	613759
142-0000-923	Double Hex Die	613367
142-0000-926	Double Hex Die	612665

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 OUTSTATE CALL TOLL FREE: 1-800-247-8256 IN MINN. CALL: 1-507-835-6222 TLX: 290470 FAX: 1-507-835-8356

JCM-A (SMA) SOLDER TYPE STRAIGHT JACK FOR SEMI-RIGID CABLE

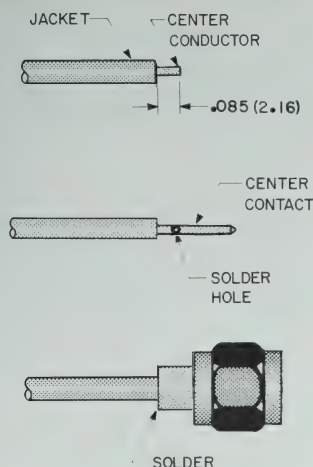
142-0593-001/010
142-0594-001/010



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick center conductor.
3. Place center contact on center conductor making sure contact bottoms against insulator. Solder center conductor to center contact through solder hole. Solder **must not** be allowed to run on outside of contact. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.** Trim excess insulation.
4. Insert contact and cable into body making sure cable is bottomed against insulator in body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement.

JCM-A (SMA) SOLDER TYPE STRAIGHT PLUG FOR SEMI-RIGID CABLE

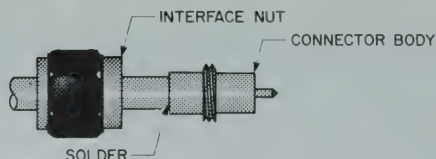
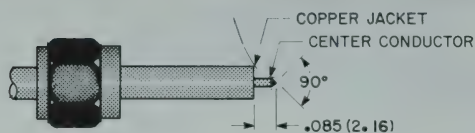
142-0693-001/010
142-0694-001/010



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick center conductor.
3. Place center contact over center conductor of cable and solder through solder hole making sure contact is bottomed against insulation. Solder **must not** be allowed to gather and run on outside of contact. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.** Trim excess insulation.
4. Insert contact and cable into body assembly making sure cable is bottomed against insulator in body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement.

JCM-A (SMA) SOLDER TYPE STRAIGHT PLUG FOR SEMI-RIGID CABLE

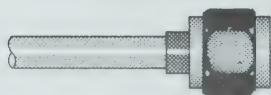
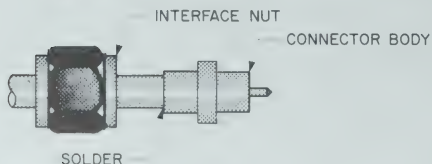
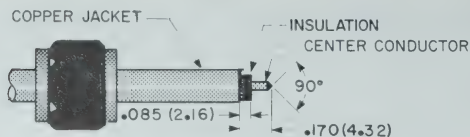
142-0694-011/020



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick center conductor. Bevel the cable center conductor to a 90 degree cone. Slide coupling nut onto cable as shown.
3. Insert cable into body making sure cable is flush with front of body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement. Trim expanded insulation flush with front of body.
4. Thread coupling nut over body.

JCM-A (SMA) SOLDER TYPE STRAIGHT PLUG FOR SEMI-RIGID CABLE

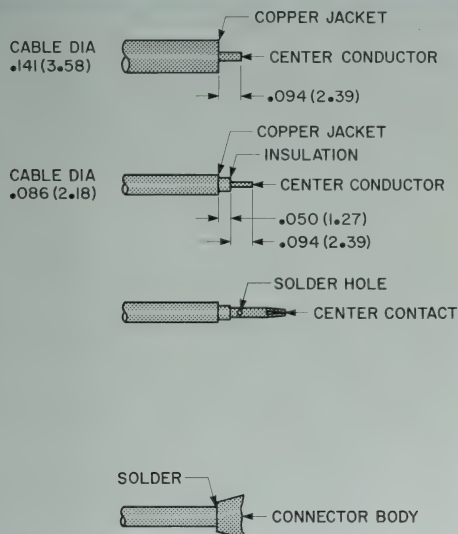
142-0694-021/030



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick center conductor. Bevel the cable center conductor to a 90 degree cone. Slide coupling nut onto cable as shown.
3. Insert cable into body making sure cable is bottomed against shoulder inside of body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement. Trim expanded insulation flush with front of body.
4. Slide coupling nut over body.

JCM-A (SMA) SOLDER TYPE JACK FOR SEMI-RIGID CABLE

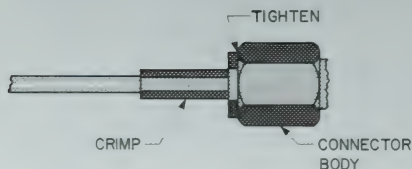
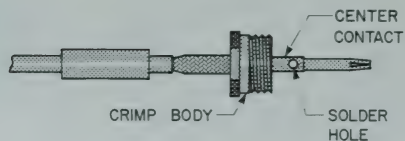
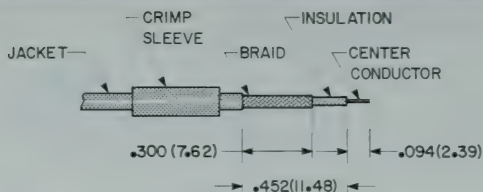
142-0285-001/006 142-0286-001/006
142-0285-501/506 142-0286-501/506



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick center conductor.
3. Place center contact on center conductor making sure contact bottoms against insulator. Solder center conductor to center contact through solder hole. Solder **must not** be allowed to run on outside of contact. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.** Trim excess insulation.
4. Insert contact and cable into body making sure cable is bottomed against insulator in body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement.

JCM-A (SMA) CRIMP TYPE STRAIGHT PLUG AND JACK FOR FLEXIBLE CABLE GROUP 1

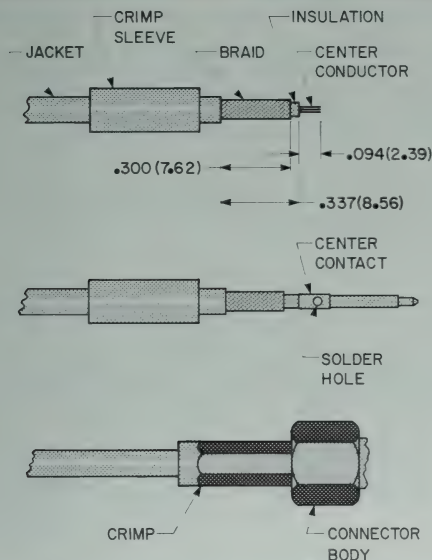
142-0301-001/006
142-0311-001/006



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into crimp body making certain that insulation is flush with insulator in crimp body. Place center contact over center conductor making sure contact bottoms against insulator. Solder center conductor to contact through the solder hole. Solder **must not** be allowed to gather and run on outside of contact. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.**
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool. Slide center contact assembly into body and tighten.

JCM-A (SMA) CRIMP TYPE STRAIGHT PLUG AND JACK FOR FLEXIBLE CABLE GROUPS 2 AND 3

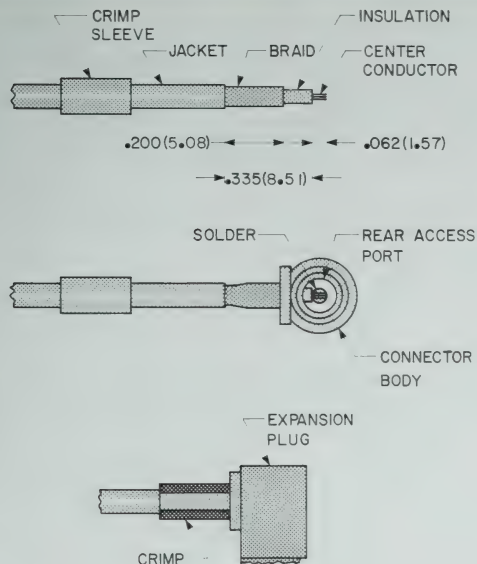
142-0321-001/006 142-0331-001/006
142-0361-001/006 142-0371-001/006



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Place center contact on center conductor making sure insulation bottoms on center contact. Solder center conductor to contact through the solder hole. Solder **must not** be allowed to gather and run on outside of contact. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.**
4. Flare braid and slide center contact and cable into body making certain that the cable insulation bottoms in the insulator recess. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.

JCM-A (SMA) CRIMP TYPE RIGHT ANGLE PLUG FOR FLEXIBLE CABLE GROUPS 1, 2, AND 3

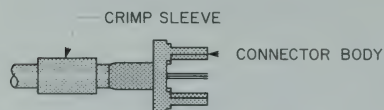
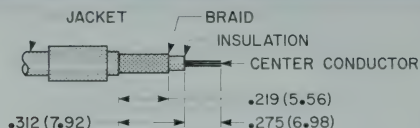
142-0402-101/106 142-0403-101/106
142-0407-101/106



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable insulation bottoms on center contact. Stepped down diameter of stem must slide under braid and jacket. Solder center conductor to contact through the rear access port. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.**
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool. Place expansion plug in access port and seat with .187" diameter flat punch.

CRIMP TYPE STRAIGHT CABLE TERMINATION FOR FLEXIBLE CABLE GROUPS 1, 2 AND 3

142-0002-201/206 142-0003-201/206
142-0007-201/206

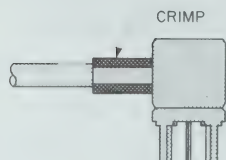
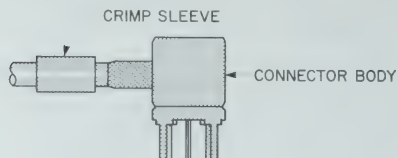
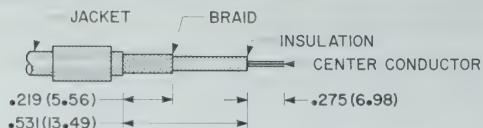


1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable insulation is flush with bottom of connector.
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.

RF
CONNECTORS

CRIMP TYPE RIGHT ANGLE CABLE TERMINATION FOR FLEXIBLE CABLE GROUPS 1, 2, AND 3

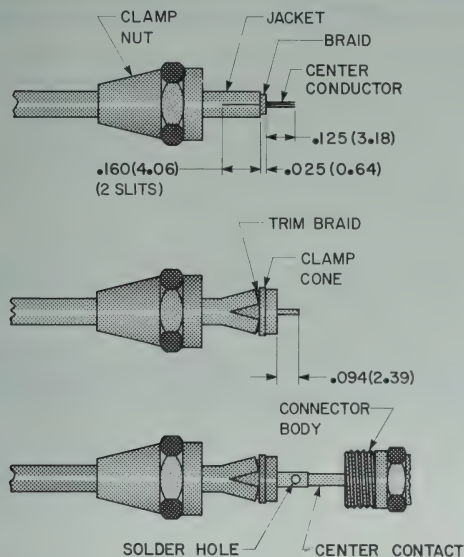
142-0002-301/306 142-0003-301/306
142-0007-301/306



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable insulation is flush with bottom of connector.
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.

JCM-A (SMA) CLAMP TYPE STRAIGHT PLUG AND JACK FOR FLEXIBLE CABLE GROUPS 1, 2, 3 AND 4

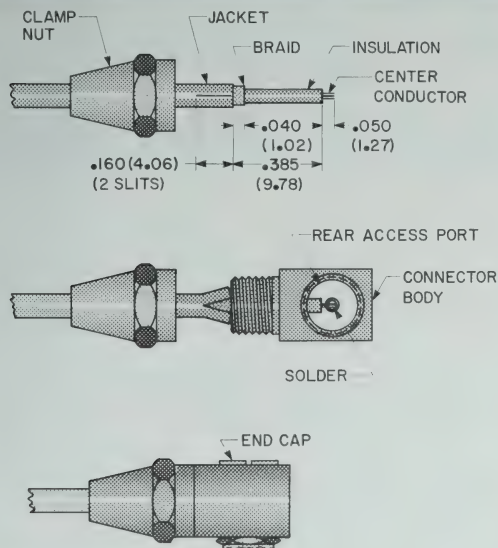
142-0201-001/006 142-0211-001/006 142-0213-001/006
 142-0221-001/006 142-0231-001/006 142-0233-001/006
 142-0261-001/006 142-0271-001/006 142-0273-001/006



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick braid. A wire stripper of correct size is recommended for this step. Slide clamp nut onto cable as shown.
3. Insert clamp cone between braid and insulation. Trim braid wires flush with cone, if necessary.
4. Place center contact over center conductor making sure contact is against insulator in cone. Solder center conductor to contact through solder hole. Solder **must not** be allowed to gather and run on outside of contact. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.** Slide insulator over contact and insert into body. Tighten clamp nut.

JCM-A (SMA) CLAMP TYPE RIGHT ANGLE PLUG FOR FLEXIBLE CABLE GROUPS 1, 2, 3 AND 4

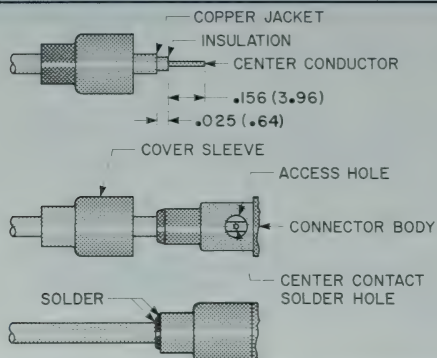
142-0202-001/006 142-0222-001/006
 142-0262-001/006



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide clamp nut onto cable as shown.
3. Insert main insulator and center contact into body making sure the hole in the center contact is in position to accept the center conductor of the cable. Insert cable into body making sure center conductor goes into hole in contact and cone end of body is between braid and cable insulation. Solder center conductor to contact through the rear access port. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.**
4. Tighten the clamp nut. Place small insulator into end cap and screw end cap into rear access port.

JCM-B (SMB) / JCM-C (SMC) SOLDER TYPE STRAIGHT PLUGS AND JACKS FOR SEMI-RIGID CABLE

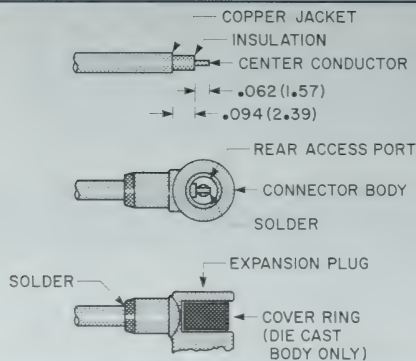
131-3593-001/016 131-6593-001/006
131-3593-401/406 131-6593-401/406
131-3693-001/016 131-6693-001/006



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick center conductor. Slide cover sleeve onto cable as shown.
3. Insert cable into body making certain that the cable insulation bottoms on center contact. Solder center conductor to contact through the side access ports and hole in center contact. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.**
4. Slide cover sleeve over access ports and solder body to cable and cover sleeve to body. Use a minimum amount of heat to minimize cable insulation movement.

JCM-B (SMB) / JCM-C (SMC) SOLDER TYPE RIGHT ANGLE PLUGS FOR SEMI-RIGID CABLE

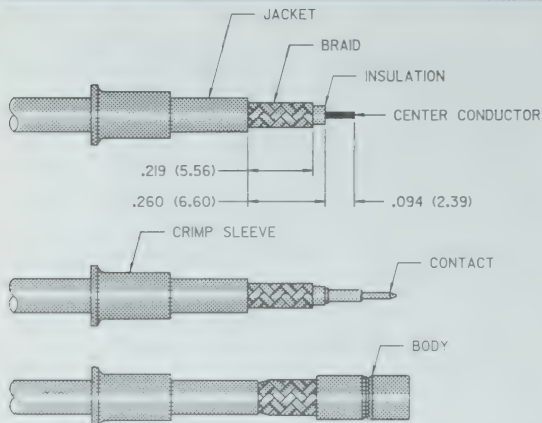
131-1693-101/116 131-3693-101/116
131-6693-101/106



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick center conductor.
3. Insert cable into body making certain that the cable insulation bottoms on center contact. Solder center conductor to contact through the rear and side access ports. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.**
4. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement. Place expansion plug in access port and set with .125" diameter punch. Snap cover ring over side access port.

JCM-B (SMB) CRIMP TYPE STRAIGHT PLUGS FOR FLEXIBLE CABLE GROUP 2

131-1303-011/016



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Slide center contact onto center conductor of the cable making sure contact is against the cable insulator and crimp securely using recommended crimp tool.
4. Flare braid and slide cable into body until the shoulder on the rear of the center contact bottoms against the connector insulator.
5. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.

JCM-B (SMB) / JCM-C (SMC) CRIMP TYPE STRAIGHT PLUGS AND JACKS FOR FLEXIBLE CABLE GROUPS 1 AND 2

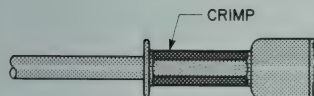
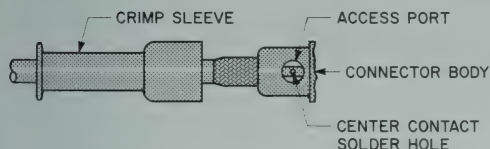
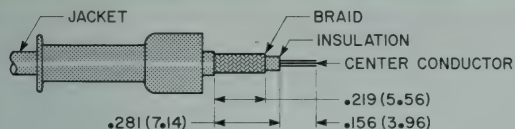
131-1403-001/016

131-3302-001/006 131-3402-001/016 131-6303-001/006

131-3302-401/406 131-3403-001/016 131-6303-401/406

131-3303-001/006 131-6302-001/006 131-6402-001/006

131-3303-401/406 131-6302-401/406 131-6403-001/006



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable insulation bottoms in center contact. Solder center conductor to contact through the side access ports and hole in center contact. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.**
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and access ports. Crimp securely using recommended crimp tool.

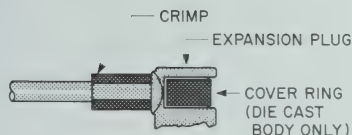
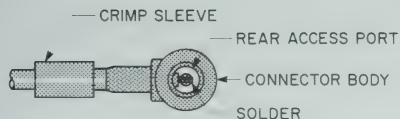
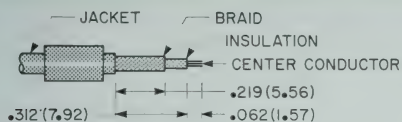
JCM-B (SMB) / JCM-C (SMC) CRIMP TYPE RIGHT ANGLE PLUGS FOR FLEXIBLE CABLE GROUPS 1 AND 2

131-1402-101/116 131-3403-101/116

131-1403-101/116 131-6003-901/906

131-3003-901/916 131-6402-101/106

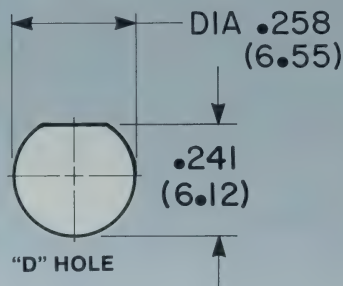
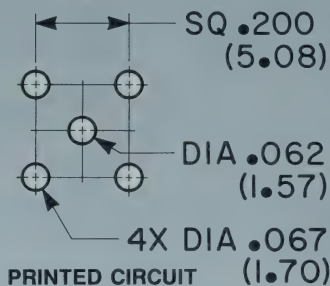
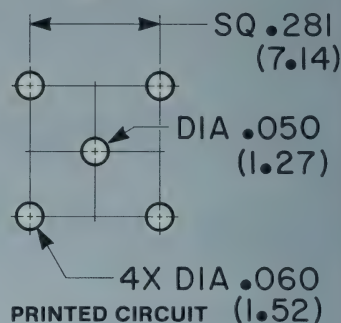
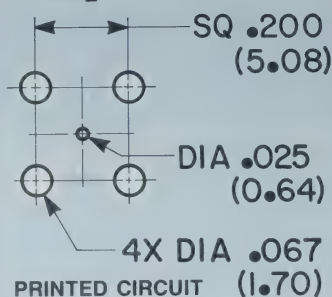
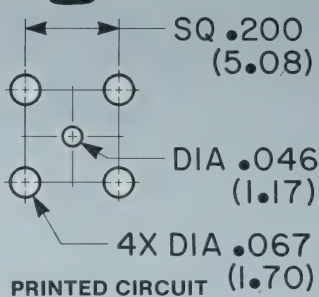
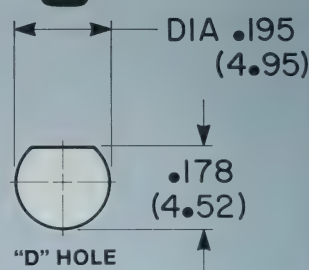
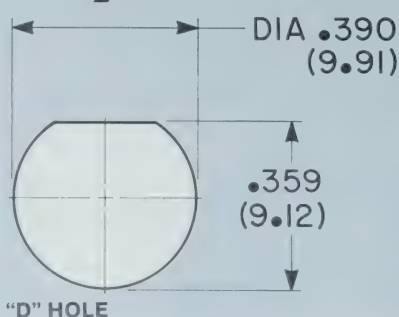
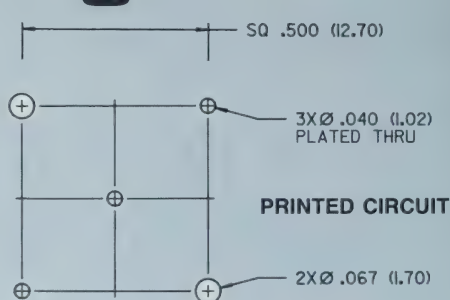
131-3402-101/116 131-6403-101/106



1. Identify connector parts.
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable insulation bottoms on center contact. Solder center conductor to contact through the rear and side access ports. Use a minimum amount of solder for a good joint. **.020" diameter solder is recommended.**
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool. Place expansion plug in access port and seat with a .125" diameter flat punch. Snap cover ring over side access ports.

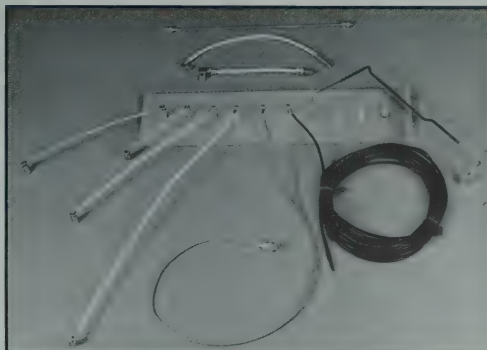
RECOMMENDED MOUNTING HOLE DIMENSIONS

JCM-A JCM-B JCM-C

1

2

3

4

5

6

7

8


Flexible Cable

**Stripping
Assembly
Crimping
Quality Control**



Semi-Rigid Cable

**Cutting
Bending
Soldering
Final Trim
Testing**

Johnson Components can offer you the benefit of its expertise in the design and manufacture of custom cable assemblies. Johnson has manufactured custom cables for its own Radio Products Group for many years. The skilled personnel pay close attention to detail and adhere to rigorous quality assurance procedures and craftsmanship to give you the cables you need on time, without hassles.

When Johnson components makes a cable for you, it saves you stocking and inventory of connectors. It saves you the cost of training personnel. It saves you throwing away damaged parts. It saves you replacing faulty assemblies.

The bottom line — you save on overhead, manufacturing and equipment costs. You get proven cost effective assemblies on time to your specifications.

Johnson can work with most any connector and cable types in flexible cable and semi-rigid cable.

Remember these cost saving guide lines when ordering your custom cable assemblies from Johnson:

- 1) Crimp type connectors assemble quicker than clamp type. They are also less expensive and the crimp sleeve provides strain relief.
- 2) Nickel plated connectors are less expensive than gold plated ones. However, nickel plated connectors have comparable electrical and environmental characteristics to gold.
- 3) Extremely tight tolerances are not necessary.
- 4) Cost can be saved by using feedthroughs or cable anchors. They eliminate the need for additional connectors in cable assemblies that don't require disconnects.

Next time you need a custom cable assembly contact Johnson's Component Products Group or one of our representatives with your specifications.

We can give you a good price and a good assembly.

SPECIFICATIONS

ELECTRICAL RATINGS

Impedance: 75 ohms

Frequency Range: 0-4 GHz

Working Voltage: 500 Vrms max. at sea level [†]

Dielectric Withstanding Voltage: 1500 Vrms min. at sea level [†]

Insulation Resistance: 5000 megohm min.

RF High Potential Withstanding Voltage: 1000 Vrms at 5 MHz [†]

Contact Resistance: Center Contact – Initial 1.5 milliohm max.
after environmental 2 milliohm max.

Outer Conductor – Initial 1.5 milliohm max.
after environmental not applicable

MECHANICAL RATINGS

Engage/Disengage Force: Initial 3 lbs. max. longitudinal

Mating Torque: 2.5 in.-lbs. max.

Contact Retention: 6 lbs. min. axial force

Durability: 500 cycles min.

Retention to .093/.125 PC Board: 100 lbs. min. vertical force

ENVIRONMENTAL RATINGS (Meets or exceeds the applicable paragraph of MIL-C-39012)

Operating Temperature: -65°C to 165°C

Thermal Shock: MIL-STD-202, Method 107, Condition A

Corrosion: MIL-STD-202, Method 101, Condition B

Shock: MIL-STD-202, Method 213, Condition C

Vibration: MIL-STD-202, Method 204, Condition B

Moisture Resistance: MIL-STD-202, Method 106

MATERIAL SPECIFICATIONS

Contact: Beryllium copper per QQ-C-530

Insulator: TFE fluorocarbon per L-P-403

Body: Zinc per ASTM B86-71

Compliant Pins: Phosphor bronze

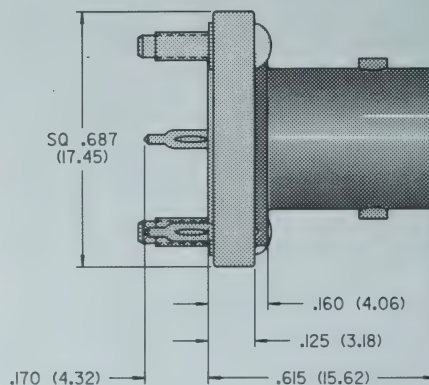
Drive Screws: Stainless steel

Washers: Brass per QQ-B-626

Finish: Contact – Gold per MIL-G-45204

Body and Washers – Nickel per QQ-N-290

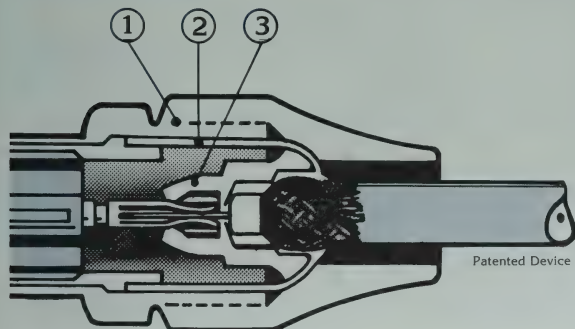
Compliant Pins – Tin/lead



Mounting hole layout Fig. 8 Page 60

E.F. JOHNSON COMPANY, Component Products, P.O. Box 59089, Minneapolis, Minnesota 55459-0089
OUTSTATE CALL TOLL FREE: 1-800-247-8256 IN MINN. CALL: 1-507-835-6222 TLX: 290470 FAX: 1-507-835-8356

- Your inventory cost is low—one connector replaces 15
- You probably get the lowest installed cost of any connector
- You never have to waste a connector—they're reusable
- You eliminate the need for expensive tools—pliers or plastic tool will do the job
- You get a proven solderless crimp connection that is better than soldered
- And you get a user friendly connector that's backed by Johnson's reputation and over 60 years of experience in the connector business



Quick and Simple!

Insert cable and tighten threaded body of the connector (1). The "prongs" (2) not only tighten onto the "shield" but force the "cable receiving wedge" (3) to clamp around the conductor.

The result is a strong, solderless crimp connection that is stronger than the cable itself.

- Attaches to most size cable smaller than RG-8/U (that means 50 different Belden cable part numbers.)
- Attached in less than 30 seconds (probably the lowest installed cost of any connector).
- A quality solderless connector that's easier to attach than a soldered one.
- Same connector can be used in-line or panel mounted.
- Solderless crimp connection can be stronger than cable itself when tools are used for tightening (finger tight is sufficient for a quality connection equal to soldered — using pliers or special plastic tightening tools makes the connection stronger than cable).
- Reusable — can be reattached to cable up to 25 times without detectable signal degradation (cuts down on wasted connectors).
- Can easily be waterproofed.
- Usable up to 1 GHz at any impedance.



Special plastic wrench sets allow you to tighten connectors for a better than soldered connection—without marring them.

Use "round" tools for tightening plastic version of "F" connectors. Use set of one white and one black clothes-pin-wrenches for tightening the metal UHF connectors. Use set of white clothes-pin-wrenches for tightening metal BNC, F and TNC connectors.

See ordering information for part numbers.

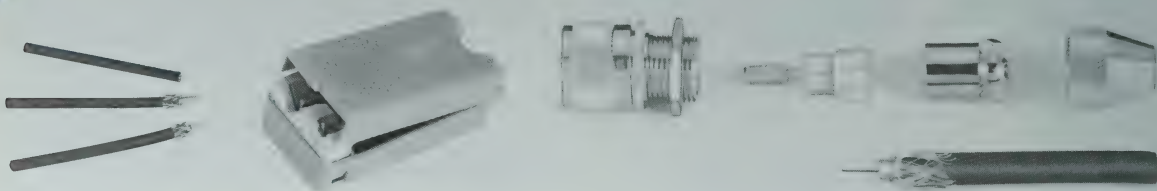


Attaches in less than 30 seconds:

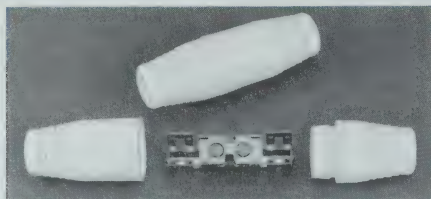


Use Stripping Tool to prepare cable sizes up to RG-8/U for attaching toolless crimp connectors. Simply insert cable into stopped hole A. Squeeze tool halves together and twist. Pull back and release tool halves. Remove outer insulation. Fold back braid. Insert insulated center conductor into stopped hole B. Squeeze tool halves together and twist. Pull back and release tool halves. Remove white center insulation. Insert cable in connector and tighten threaded body to clamp both braid and center conductor onto connector.

**INSERT INTO STOPPED HOLE A
TWIST
PULL
FOLD BACK BRAID
INSERT INTO STOPPED HOLE B
TWIST
PULL
PUSH INTO CONNECTOR
TIGHTEN THREADED BODY
DONE**



Ask for our evaluation pack containing one connector and instruction sheet for your examination.



Indoor/Outdoor Splicer

Three piece unit splices cable together quickly and reliably. Plastic insulators fit onto cable sizes up to RG-8/U. Set screw holds center conductor and crimp wings hold braid. Attaches in a matter of minutes.

Ordering Information

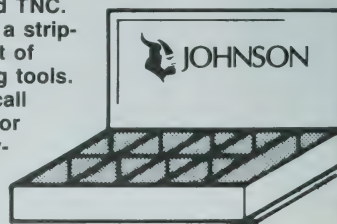
PART NUMBER	DESCRIPTION
140-9200-006	BNC (M)
140-9100-006	BNC (F)
140-9200-026	UHF (M)
140-9100-026	UHF (F)
140-9200-035	"F" Black
140-9200-016	TNC (M)
140-9000-094	Splicer
140-0000-943	Stripping Tool
140-0000-944	Wrench Set (Plastic F)
140-0000-945	Wrench Set (Metal BNC, F, TNC)
140-0000-946	Wrench Set (Metal UHF)

LAB/SAMPLER KIT is available with a convenient useful selection of Toolless Crimp connectors. It contains 3 of each of the following: BNC Male, BNC Female, F Type Metal, F Type Plastic, UHF Male, UHF Female, and TNC.

Also included is a stripping tool and set of plastic tightening tools.

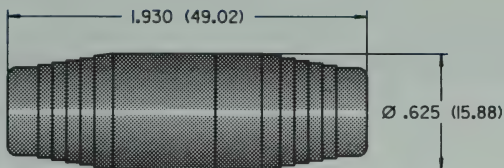
To order yours call 1-800-247-8256 for pricing and delivery information.

Part Number
140-0000-001



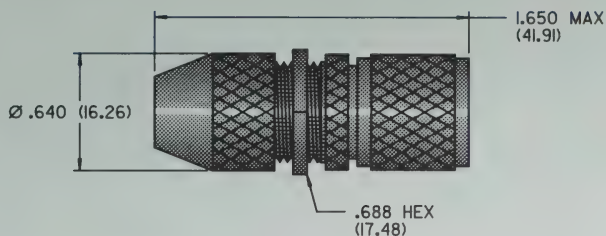
140-9000-094

**INDOOR/OUTDOOR
SPLICER
PLASTIC BODY**



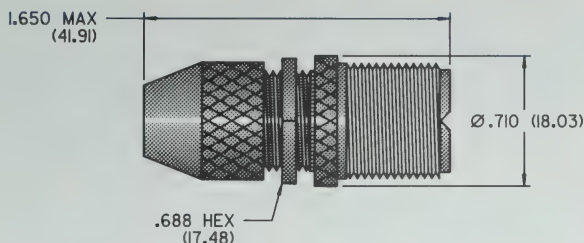
140-9200-016

**TNC - STRAIGHT
CLAMP TYPE PLUG
NICKEL PLATED
BRASS BODY**



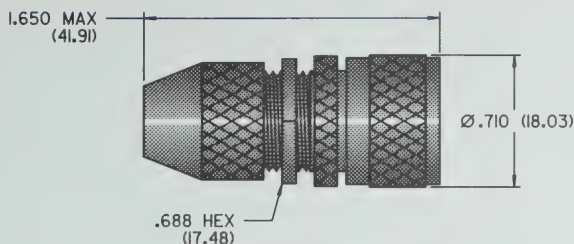
140-9100-026

**UHF - STRAIGHT
CLAMP TYPE JACK
NICKEL PLATED
BRASS BODY**



140-9200-026

**UHF - STRAIGHT
CLAMP TYPE PLUG
NICKEL PLATED
BRASS BODY**



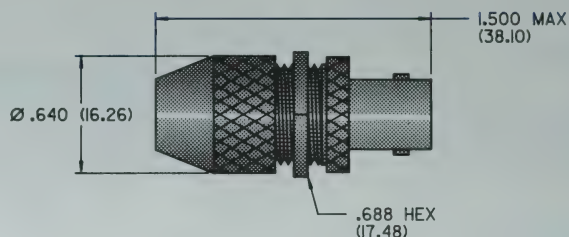
140-9200-035 BLACK

**“F” – STRAIGHT
CLAMP TYPE PLUG
PLASTIC BODY**



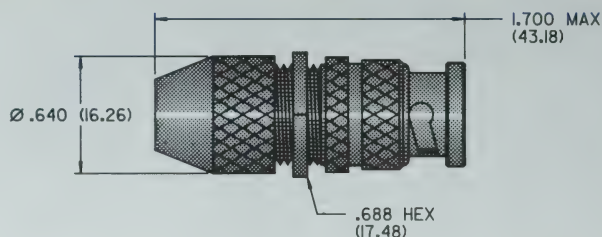
140-9100-006

**BNC – STRAIGHT
CLAMP TYPE JACK
NICKEL PLATED
BRASS BODY**



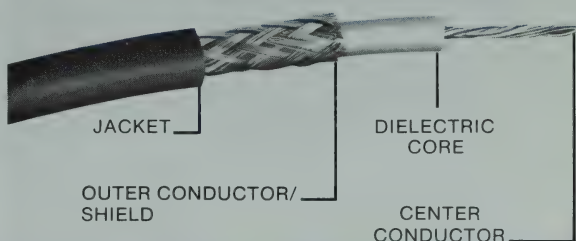
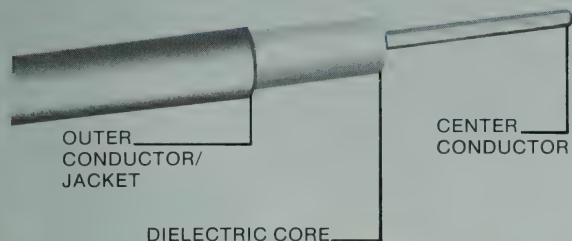
140-9200-006

**BNC – STRAIGHT
CLAMP TYPE PLUG
NICKEL PLATED
BRASS BODY**



SEMI-RIGID

FLEXIBLE

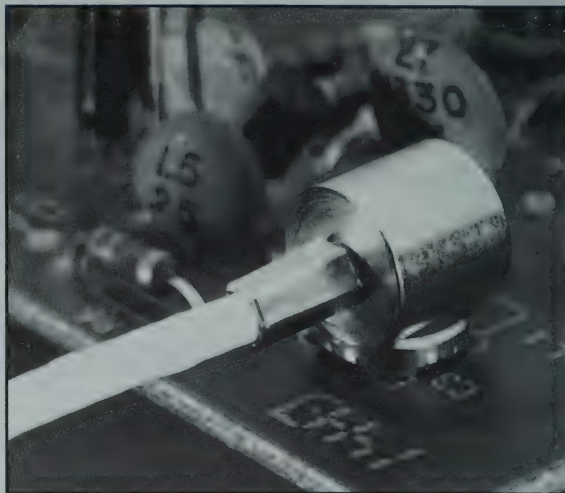
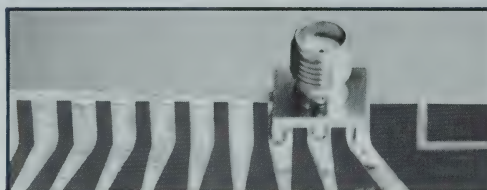


Semi-Rigid Cable Dimensions

Cable	Center Conductor	O.D. Dielectric	O.D. Shield	O.D.	Impedance
RG-405/U	.0201	.0658	.086	.086	50
RG-402/U	.0359	.1175	.141	.141	50

RG Flexible Cable Dimensions

Cable	Center Conductor	O.D. Dielectric	O.D. Shield	O.D.	Impedance
RG-55B/U	.032	.116	(DB) .176	.206	53.5
RG-58C/U	.038	.116	.150	.195	50
RG-59B/U	.023	.146	.191	.242	75
RG-62A/U	.025	.146	.191	.242	93
RG-71B/U	.025	.146	.208	.250	93
RG-140/U	.025	.146	.176	.233	75
RG-141A/U	.039	.116	.146	.190	50
RG-142B/U	.039	.116	(DB) .171	.195	50
RG-174/U	.019	.060	.080	.100	50
RG-178B/U	.012	.034	.054	.080	50
RG-179B/U	.012	.060	.084	.110	75
RG-180B/U	.012	.102	.124	.145	95
RG-187A/U	.012	.060	.084	.110	75
RG-188A/U	.020	.060	.081	.110	50
RG-195A/U	.012	.102	.124	.155	95
RG-196A/U	.012	.034	.054	.080	50
RG-223/U	.032	.116	(DB) .176	.206	53.5
RG-303/U	.039	.116	.146	.190	50
RG-316/U	.020	.060	.081	.110	50


SHIELDED TEST JACK APPLICATION

CABLE TERMINATION APPLICATION

**END
LAUNCH
APPLICATION**

Useful Design Formulas

Note: All diameter dimensions in inches

1. CHARACTERISTIC IMPEDANCE



$$Z_0 = \frac{138}{\sqrt{e}} \log_{10} \frac{D}{d}$$

(ohms)

where e = dielectric constant

2. CUTOFF FREQUENCY

$$F_{cut} = \frac{7.52}{\sqrt{e} (D + d)}$$

(GHz)

3. INSERTION LOSS

$$(1) IL = 10 \log \frac{P_o}{P_i}$$

(dB)

where

P_o = load power without inserted component.

P_i = load power with inserted component.

$$(2) IL = A_i + A_R$$

(dBR)

where

A_i = power absorbed by inserted component

A_R = power reflected by inserted component

$$A_R = 10 \log \frac{(VSWR - 1)^2}{4 VSWR}$$

4. CAPACITANCE

$$C = \frac{7.38 e}{\log_{10} \frac{D}{d}}$$

(pF/ft)

5. ATTENUATION (at 20°C)

$$A = \frac{.434}{Z_0} \left[\frac{\sqrt{R_i}}{d} + \frac{\sqrt{R_o}}{D} \right] f^{1/2} + 2.78 f e^{1/2} F_p$$

(dB/100 ft)

where

R_i = ratio of center conductor conductivity to copper.

R_o = ratio of outer conductor conductivity to copper.

(R_i, R_o = 1.0 for copper)

f = frequency in MHz

e = dielectric constant

F_p = power factor

6. VELOCITY OF PROPOGATION

$$V_p = \frac{1}{\sqrt{e}} \times 100$$

(%)

7. DELAY LINE CALCULATIONS

$$(1) \text{ Ft. of cable} = \frac{\text{Avg. Dia.} \times \pi \times \text{No. passes} \times \text{No. turns}}{12}$$

$$(2) \text{ Ft. of cable} = \text{Velocity of Propagation} \times \text{Delay Time (ns)}$$

Johnson Test Leads and Patch Cords feature solderless, crimp-on connections with superior strain relief, long life and high reliability. Test leads feature molded flanges to protect against shock, anti-slip ribs for a better grip and a threaded tip that accepts space lugs, alligator clips and other accessories. Patch cords include hooks, stackable standard and miniature banana plugs, alligator clips and plain wire ends. RF patch cords are also available in a wide range of connector styles and cables.

ORDERING INFORMATION

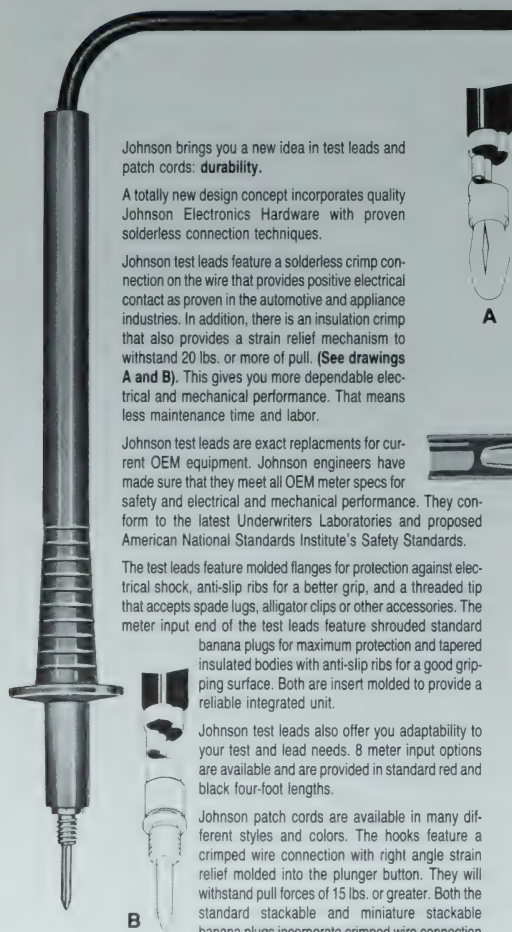
For a numerical index of the complete product line, refer to the end of this catalog, starting on page 113.

Each test lead and patch cord listing in this section includes illustrations and part number information. Electrical and material specs are listed before each product sub-section.

TO ORDER

Test leads are available in red or black, four-foot lengths with a variety of terminations. Patch cords are stocked in many different styles and colors in various lengths. To identify the part number of the required part, determine the termination, color and length desired. Call one of our over 200 distributors to order the part. For the name of your local distributor or if you have special requirements, contact the factory at 1-800-247-8256 or write Component Marketing Manager, P.O. Box 59089, Minneapolis, MN 55459-0089.

Patch Cords	72, 73
RF Patch Cords	74-77
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Typical Test Leads and Patch Cords	78-87
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Johnson brings you a new idea in test leads and patch cords: **durability.**

A totally new design concept incorporates quality Johnson Electronics Hardware with proven solderless connection techniques.

Johnson test leads feature a solderless crimp connection on the wire that provides positive electrical contact as proven in the automotive and appliance industries. In addition, there is an insulation crimp that also provides a strain relief mechanism to withstand 20 lbs. or more of pull. (See drawings A and B). This gives you more dependable electrical and mechanical performance. That means less maintenance time and labor.

Johnson test leads are exact replacements for current OEM equipment. Johnson engineers have made sure that they meet all OEM meter specs for safety and electrical and mechanical performance. They conform to the latest Underwriters Laboratories and proposed American National Standards Institute's Safety Standards.

The test leads feature molded flanges for protection against electrical shock, anti-slip ribs for a better grip, and a threaded tip that accepts spade lugs, alligator clips or other accessories. The meter input end of the test leads feature shrouded standard banana plugs for maximum protection and tapered insulated bodies with anti-slip ribs for a good gripping surface. Both are insert molded to provide a reliable integrated unit.

Johnson test leads also offer you adaptability to your test and lead needs. 8 meter input options are available and are provided in standard red and black four-foot lengths.

Johnson patch cords are available in many different styles and colors. The hooks feature a crimped wire connection with right angle strain relief molded into the plunger button. They will withstand pull forces of 15 lbs. or greater. Both the standard stackable and miniature stackable banana plugs incorporate crimped wire connection with molded tapered insulated bodies and anti-slip ribs as the test lead meter inputs.

Johnson innovation gives you test leads and patch cords made for a long durable life. They give you increased reliability without increased cost. SO put Johnson's latest innovation to work for you. The complete line is available off-the-shelf from Johnson distributors nationwide.

* Cutaway view shown.

** This item packaged 5 pieces to a pack. All other numbers listed are packaged 1 piece to a pack.



A

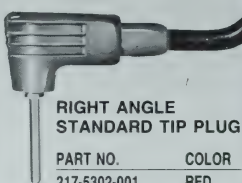
RIGHT ANGLE STANDARD BANANA PLUG

PART NO.	COLOR
217-8302-001	RED
217-8303-001	BLACK



SHROUDED STANDARD BANANA PLUG*

PART NO.	COLOR
217-8202-001	RED
217-8203-001	BLACK



RIGHT ANGLE STANDARD TIP PLUG

PART NO.	COLOR
217-5302-001	RED
217-5303-001	BLACK



RIGHT ANGLE SHROUDED STANDARD BANANA JACK*

PART NO.	COLOR
217-6402-001	RED
217-6403-001	BLACK



ALLIGATOR CLIP*

PART NO.	COLOR
115-0021-012 **	RED
115-0021-013 **	BLACK

BANANA PLUG



STANDARD BANANA PLUG

PART NO.	COLOR
217-8102-001	RED
217-8103-001	BLACK



RIGHT ANGLE SHROUDED STANDARD BANANA PLUG*

PART NO.	COLOR
217-8402-001	RED
217-8403-001	BLACK



STANDARD TIP PLUG

PART NO.	COLOR
217-5102-001	RED
217-5103-001	BLACK

BANANA JACK



SHROUDED STANDARD BANANA JACK*

PART NO.	COLOR
217-6202-001	RED
217-6203-001	BLACK

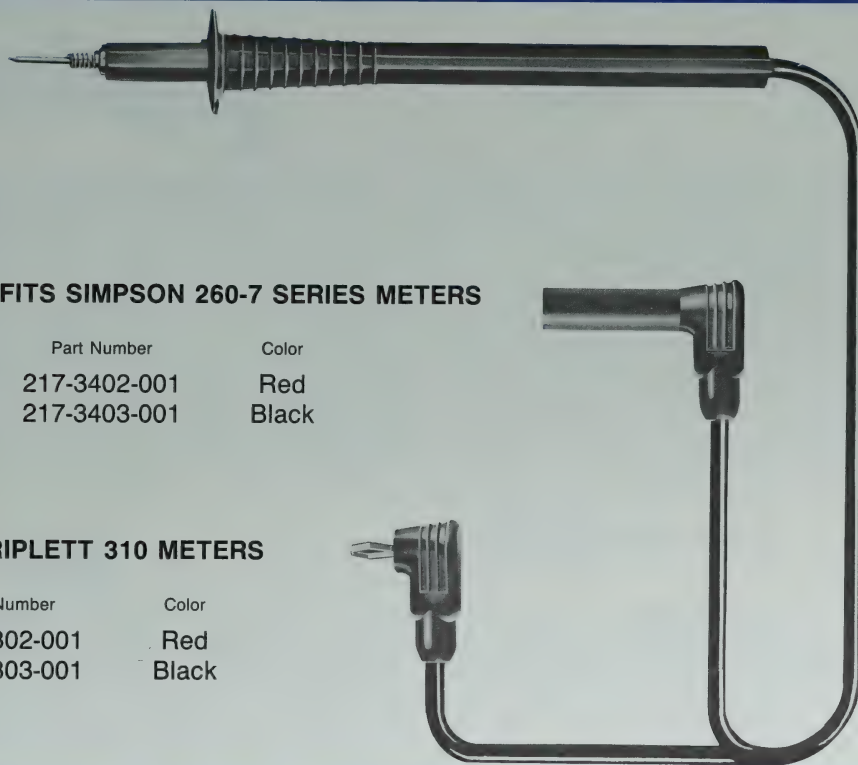
SPADE LUG



SPADE LUG

PART NO.
115-0022-001

TEST LEAD



FITS SIMPSON 260-7 SERIES METERS

Part Number	Color
217-3402-001	Red
217-3403-001	Black

FITS TRIPLETT 310 METERS

Part Number	Color
217-4302-001	Red
217-4303-001	Black

TEST LEADS
PATCH CORDS

SPECIFICATIONS

TEST LEADS

MATERIAL SPECIFICATIONS

Tip Material: Nickel plated brass

Handle: ABS plastic

Wire: 18 AWG, 65 X36 stranded, tin coated, rubber insulation

Colors: Red, Black

ELECTRICAL RATINGS

Voltage: 1000 Vrms working †

Current: 10 amps at 60 Hz

Wire Pull Out Force: 20 lbs. min.

PATCH CORDS

CONTACTS

Mini-Hooks: Gold plated beryllium copper

Standard Banana Plug: Nickel plated brass body

Nickel silver alloy spring

Miniature Banana Plug: Nickel plated brass body

Nickel plated beryllium copper spring

Alligator Clip: Nickel plated steel

PLASTIC PARTS

Hook: Nylon 6/6, polypropylene

Banana Plug: Polypropylene

Alligator Clips: Vinyl

WIRE

Mini-Hooks: 20 AWG, (40 x 36) stranded, tin coated, extra flexible polyvinyl insulation

Standard Banana Plug and Alligator Clip: 18 AWG, (65 x 36)

stranded, tin coated, extra flexible polyvinyl insulation

ELECTRICAL RATINGS†

Wire: 18 AWG – 5000 WVDC 7 amps

20 AWG – 3000 WVDC 5 amps

Wire Pull Out Force: 18 AWG – 20 lbs. min.

20 AWG – 15 lbs. min.



MINI-HOOK TO MINI-HOOK

Color	Part No.	Length	Color	Part No.	Length	Color	Part No.	Length
WHITE	417-9901-008	8"	RED	417-9902-008	8"	BLACK	417-9903-008	8"
	417-9901-012	12"		417-9902-012	12"		417-9903-012	12"
	417-9901-018	18"		417-9902-018	18"		417-9903-018	18"
	417-9901-024	24"		417-9902-024	24"		417-9903-024	24"
	417-9901-036	36"		417-9902-036	36"		417-9903-036	36"
	417-9901-048	48"		417-9902-048	48"		417-9903-048	48"
	417-9901-060	60"		417-9902-060	60"		417-9903-060	60"
GREEN	417-9904-008	8"	YELLOW	417-9907-008	8"	BLUE	417-9910-008	8"
	417-9904-012	12"		417-9907-012	12"		417-9910-012	12"
	417-9904-018	18"		417-9907-018	18"		417-9910-018	18"
	417-9904-024	24"		417-9907-024	24"		417-9910-024	24"
	417-9904-036	36"		417-9907-036	36"		417-9910-036	36"
	417-9904-048	48"		417-9907-048	48"		417-9910-048	48"
	417-9904-060	60"		417-9907-060	60"		417-9910-060	60"

Insert molded parts with stainless steel spring, provide 8 oz. of contact pressure for secure connections. Contact is gold plated beryllium copper for low contact resistance. Hooks securely onto lead sizes up to .040" dia. or will slide on to .025" square post for vertical hook up.



MINI-HOOK TO STANDARD STACKING BANANA PLUG

Color	Part No.	Length	Color	Part No.	Length	Color	Part No.	Length
WHITE	417-8901-008	8"	RED	417-8902-008	8"	BLACK	417-8903-008	8"
	417-8901-012	12"		417-8902-012	12"		417-8903-012	12"
	417-8901-018	18"		417-8902-018	18"		417-8903-018	18"
	417-8901-024	24"		417-8902-024	24"		417-8903-024	24"
	417-8901-036	36"		417-8902-036	36"		417-8903-036	36"
	417-8901-048	48"		417-8902-048	48"		417-8903-048	48"
	417-8901-060	60"		417-8902-060	60"		417-8903-060	60"
GREEN	417-8904-008	8"	YELLOW	417-8907-008	8"	BLUE	417-8910-008	8"
	417-8904-012	12"		417-8907-012	12"		417-8910-012	12"
	417-8904-018	18"		417-8907-018	18"		417-8910-018	18"
	417-8904-024	24"		417-8907-024	24"		417-8910-024	24"
	417-8904-036	36"		417-8907-036	36"		417-8910-036	36"
	417-8904-048	48"		417-8907-048	48"		417-8910-048	48"
	417-8904-060	60"		417-8907-060	60"		417-8910-060	60"

Hook features reliable stainless steel spring for quick secure connections. Banana plug offers stacking feature for multiple meter access. It can be used with standard .166" dia. banana jacks. Insulated body is tapered with anti-slip ribs for safety in removal from test equipment.

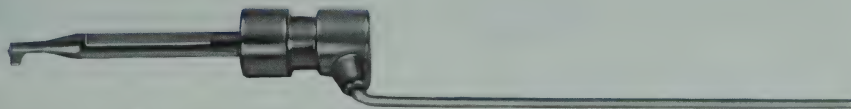


MINI-HOOK TO MINIATURE STACKING BANANA PLUG

Color	Part No.	Length	Color	Part No.	Length	Color	Part No.	Length
WHITE	417-4901-008	8"	RED	417-4902-008	8"	BLACK	417-4903-008	8"
	417-4901-012	12"		417-4902-012	12"		417-4903-012	12"
	417-4901-018	18"		417-4902-018	18"		417-4903-018	18"
	417-4901-024	24"		417-4902-024	24"		417-4903-024	24"
	417-4901-036	36"		417-4902-036	36"		417-4903-036	36"
	417-4901-048	48"		417-4902-048	48"		417-4903-048	48"
	417-4901-060	60"		417-4902-060	60"		417-4903-060	60"
GREEN	417-4904-008	8"	YELLOW	417-4907-008	8"	BLUE	417-4910-008	8"
	417-4904-012	12"		417-4907-012	12"		417-4910-012	12"
	417-4904-018	18"		417-4907-018	18"		417-4910-018	18"
	417-4904-024	24"		417-4907-024	24"		417-4910-024	24"
	417-4904-036	36"		417-4907-036	36"		417-4910-036	36"
	417-4904-048	48"		417-4907-048	48"		417-4910-048	48"
	417-4904-060	60"		417-4907-060	60"		417-4910-060	60"

Hook features insert molded parts with reliable stainless steel spring for quick secure connections. Plug can be used with miniature .104" dia. banana jacks. Insulated body features tapered back with anti-slip ribs for easy, safe removal from test equipment.

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MINI-HOOK TO CLIPPED WIRE

Color	Part No.	Length	Color	Part No.	Length	Color	Part No.	Length
WHITE	417-0901-008	8"	RED	417-0902-008	8"	BLACK	417-0903-008	8"
	417-0901-012	12"		417-0902-012	12"		417-0903-012	12"
	417-0901-018	18"		417-0902-018	18"		417-0903-018	18"
	417-0901-024	24"		417-0902-024	24"		417-0903-024	24"
	417-0901-036	36"		417-0902-036	36"		417-0903-036	36"
	417-0901-048	48"		417-0902-048	48"		417-0903-048	48"
	417-0901-060	60"		417-0902-060	60"		417-0903-060	60"
GREEN	417-0904-008	8"	YELLOW	417-0907-008	8"	BLUE	417-0910-008	8"
	417-0904-012	12"		417-0907-012	12"		417-0910-012	12"
	417-0904-018	18"		417-0907-018	18"		417-0910-018	18"
	417-0904-024	24"		417-0907-024	24"		417-0910-024	24"
	417-0904-036	36"		417-0907-036	36"		417-0910-036	36"
	417-0904-048	48"		417-0907-048	48"		417-0910-048	48"
	417-0904-060	60"		417-0907-060	60"		417-0910-060	60"

Insert molded parts with stainless steel spring give firm connections. Hooks securely onto lead sizes up to .040" dia. Terminates in wire end of extra flexible vinyl for custom connections.



STANDARD STACKING BANANA PLUG TO STANDARD STACKING BANANA PLUG

Color	Part No.	Length	Color	Part No.	Length	Color	Part No.	Length
WHITE	417-8801-004	4"	RED	417-8802-004	4"	BLACK	417-8803-004	4"
	417-8801-008	8"		417-8802-008	8"		417-8803-008	8"
	417-8801-012	12"		417-8802-012	12"		417-8803-012	12"
	417-8801-018	18"		417-8802-018	18"		417-8803-018	18"
	417-8801-024	24"		417-8802-024	24"		417-8803-024	24"
	417-8801-036	36"		417-8802-036	36"		417-8803-036	36"
	417-8801-048	48"		417-8802-048	48"		417-8803-048	48"
	417-8801-060	60"		417-8802-060	60"		417-8803-060	60"
GREEN	417-8804-004	4"	YELLOW	417-8807-004	4"	BLUE	417-8810-004	4"
	417-8804-008	8"		417-8807-008	8"		417-8810-008	8"
	417-8804-012	12"		417-8807-012	12"		417-8810-012	12"
	417-8804-018	18"		417-8807-018	18"		417-8810-018	18"
	417-8804-024	24"		417-8807-024	24"		417-8810-024	24"
	417-8804-036	36"		417-8807-036	36"		417-8810-036	36"
	417-8804-048	48"		417-8807-048	48"		417-8810-048	48"
	417-8804-060	60"		417-8807-060	60"		417-8810-060	60"

Molded body features tapered design with anti-slip ribs for easy, safe removal from test equipment. Fits all standard .166" dia. banana jacks. Has cross hole and stacking connection option.



INSULATED ALLIGATOR CLIP TO INSULATED ALLIGATOR CLIP

Color	Part No.	Length	Color	Part No.	Length
RED	417-1102-012	12"	BLACK	417-1103-012	12"
	417-1102-024	24"		417-1103-024	24"
	417-1102-036	36"		417-1103-036	36"
	417-1102-048	48"		417-1103-048	48"
	417-1102-060	60"		417-1103-060	60"

Tough nickel plated steel clips with red or black matching insulation boots. Connections are soldered for reliability and long life.

RF Patch Cords for all your test equipment inter-connection needs. Dual banana plugs feature a marked tab on the ground connection. They can also be stacked for parallel multiple connections. Molded black dual banana plugs available on RG-58 C/U coaxial cable and gray on 18 AWG twisted pair cable. Dual banana plugs come cabled to red and black mini-hooks, alligator clips and nickel plated brass BNC connectors. Mini-hook and alligator clip red lead on coaxial cable is shorted to minimize noise pick up. Alligator clips on twisted pair are equal in length.

BNC connectors are available in a variety of cable configurations. Crimped on male connectors with molded strain relief come in both 50 ohm (RG-58 C/U) and 75 ohm (RG-59 B/U) cable ver-

sions. Clamp type male and female BNC connectors are cabled together with 50 ohm RG-58 C/U to make RF patch cords of various standard lengths. BNC clamp type connectors come attached to dual banana plugs and mini-hooks for versatility of connection.

Make BNC patch cords more useful with molded breakouts. Make any RF patch cable into a test lead with male plug and female jack types molded to mini-hooks.

SPECIFICATIONS

CONTACTS

BNC Connectors: Crimp (Center contact only)
 Male – Gold plated brass
 Clamp (Center contact only)
 Male – Gold plated brass
 Female – Gold plated brass

Mini-Hooks: Gold plated beryllium copper

Standard Banana Plug: Nickel plated brass body
 Nickel silver alloy spring

PLASTIC PARTS

Mini-Hooks: Nylon 6/6, polypropylene
Dual Banana Plug: High density polyethylene
Molded Strain Relief: PVC insulation
Molded "Y": PVC insulation
Molded Breakout: Polypropylene
Alligator Clip Boot: Vinyl

BODY

Molded Breakout: Male – Nickel plated brass
 Female – Nickel plated brass

Alligator Clip: Nickel plated steel

WIRE

Wire from "Y" Termination: 20 AWG (40 x 36) stranded, tin coated, extra flexible, polyvinyl insulation

Wire from Molded Breakout: 20 AWG (40 x 36) stranded, tin coated, extra flexible polyvinyl

Dual Banana Plug and BNC Connectors: Black 50 ohm RG-58 C/U, 75 ohm RG-59 B/U

All Twisted Pair: Gray, two conductor 18 AWG (65 x 36) stranded, tin coated, vinyl jacket and insulation

CABLE ASSEMBLY RATINGS†

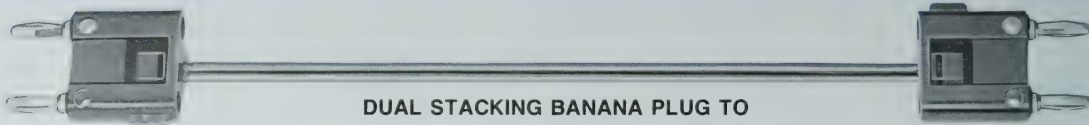
20 AWG: 3000 WVDC

RG-58 C/U: 500 WVDC

Twisted Pair: 300 WVDC

RG-59 B/U: 500 WVDC

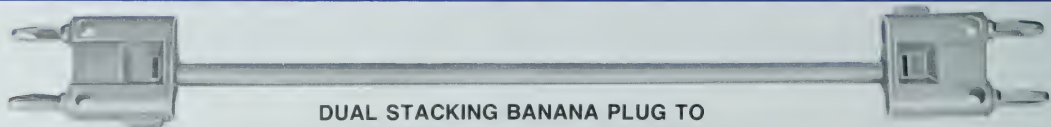
TEST LEADS
PATCH CORDS



**DUAL STACKING BANANA PLUG TO
DUAL STACKING BANANA PLUG**

Color	Part No.	Length
BLACK	417-7881-018	18"
	417-7881-024	24"
	417-7881-036	36"
	417-7881-048	48"
	417-7881-060	60"

Dual stacking banana plugs feature marked ground connection, rear and side stacking for multiple parallel stacking capability. Wire is RG-58 C/U.



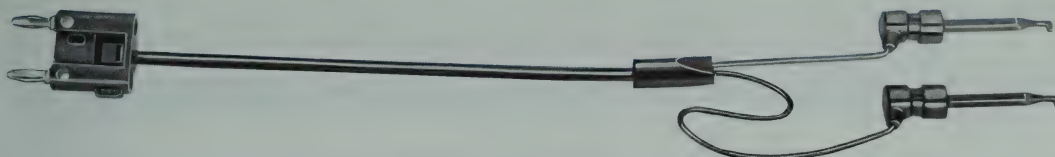
**DUAL STACKING BANANA PLUG TO
DUAL STACKING BANANA PLUG (TWISTED PAIR)**

Color	Part No.	Length
GRAY	417-7887-018	18"
	417-7887-024	24"
	417-7887-036	36"
	417-7887-048	48"
	417-7887-060	60"

Dual stacking banana plugs cabled to 18 AWG twisted pair cable. Dual plugs feature marked ground connection, rear and side stacking for multiple parallel stacking capability.

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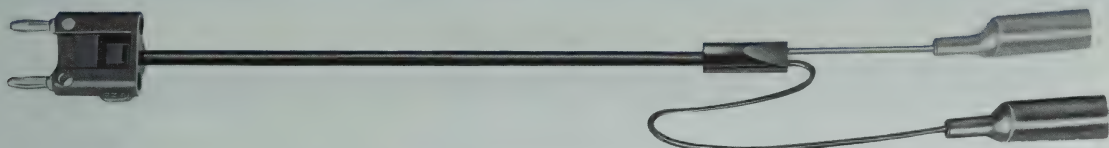
† Avoid user injury due to misapplication.
 See safety advisory and definitions, page 1



DUAL STACKING BANANA PLUGS TO MINI-HOOKS

Color	Part No.	Length
RED/BLACK	417-7981-018	18"
	417-7981-024	24"
	417-7981-036	36"
	417-7981-048	48"
	417-7981-060	60"

Dual stacking banana plug features marked ground connection, rear and side stacking for multiple parallel stacking connection capability. Hooks feature insert molded parts with reliable stainless steel spring for quick secure connections. Wire is RG-58 C/U cable and 20 AWG ("Y" termination).



DUAL STACKING BANANA PLUG TO INSULATED ALLIGATOR CLIPS

Color	Part No.	Length
RED/BLACK	417-7181-018	18"
	417-7181-024	24"
	417-7181-036	36"
	417-7181-048	48"
	417-7181-060	60"

Dual stacking banana plug features marked ground connection, rear and side stacking for multiple parallel stacking connection capability. Tough nickel plated steel clips with red and black matching insulation boots. Wire is RG-58 C/U cable and 20 AWG ("Y" termination).



DUAL STACKING BANANA PLUG TO INSULATED ALLIGATOR CLIPS (TWISTED PAIR)

Color	Part No.	Length
GRAY	417-7187-018	18"
	417-7187-024	24"
	417-7187-036	36"
	417-7187-048	48"
	417-7187-060	60"

Dual stacking banana plug cabled to 18 AWG twisted pair cable features marked ground connection, rear and side stacking for multiple parallel stacking connection capability. Tough nickel plate steel clips with red and black matching insulation boots. 20 AWG wire soldered to clips for reliability and long life.



DUAL STACKING BANANA PLUG TO MALE BNC CONNECTOR

Color	Part No.	Length
BLACK	417-7821-018	18"
	417-7821-024	24"
	417-7821-036	36"
	417-7821-048	48"
	417-7821-060	60"

Dual stacking banana plug features marked ground connection, rear and side stacking for multiple parallel stacking connection capability. Wire is RG-58 C/U cable.


STRAIN-RELIEVED BNC MALE TO STRAIN-RELIEVED BNC MALE (50 OHM CABLE)

Color	Part No.	Length
BLACK	417-7223-012	12"
	417-7223-024	24"
	417-7223-036	36"
	417-7223-048	48"
	417-7223-060	60"

BNC male connectors crimped to RG-58 C/U cable. Molded strain relief covers cable connections for long service life.


STRAIN-RELIEVED BNC MALE TO STRAIN-RELIEVED BNC MALE (75 OHM CABLE)

Color	Part No.	Length
BLACK	417-7224-012	12"
	417-7224-024	24"
	417-7224-036	36"
	417-7224-048	48"
	417-7224-060	60"

BNC male connectors crimped to RG-59 B/U cable. Molded strain relief covers cable connections for long service life.


BNC MALE TO BNC MALE

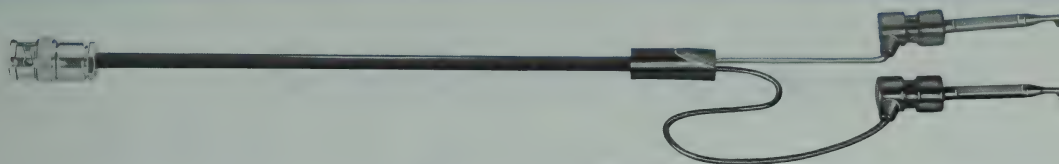
Color	Part No.	Length
BLACK	417-7221-018	18"
	417-7221-024	24"
	417-7221-036	36"
	417-7221-048	48"
	417-7221-060	60"

Clamp type BNC connectors. Wire is RG-58 C/U cable.


BNC MALE TO BNC FEMALE

Color	Part No.	Length
BLACK	417-7321-018	18"
	417-7321-024	24"
	417-7321-036	36"
	417-7321-048	48"
	417-7321-060	60"

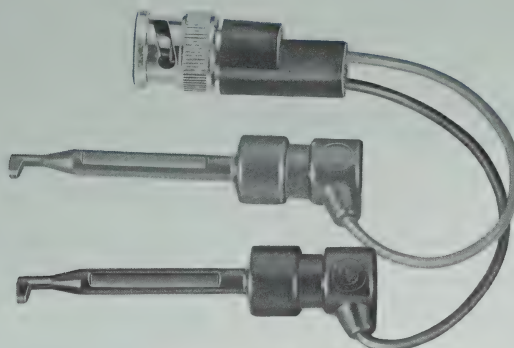
Clamp type BNC connectors. Wire is RG-58 C/U cable.



BNC MALE TO MINI-HOOKS

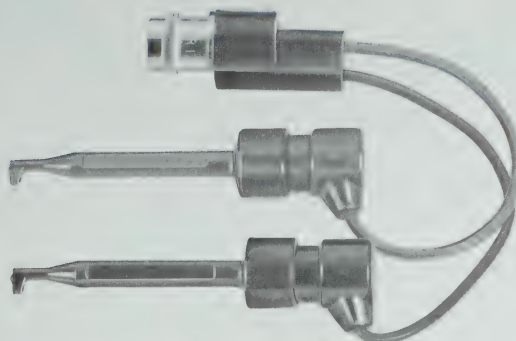
Color	Part No.	Length
BLACK	417-7921-018	18"
	417-7921-024	24"
	417-7921-036	36"
	417-7921-048	48"
	417-7921-060	60"

Clamp type BNC connector. Hooks feature insert molded parts with reliable stainless steel spring for quick secure connections. Wire is RG-58 C/U cable and 20 AWG ("Y" termination).



BNC MALE TO MINI-HOOKS MOLDED BREAKOUT

Color	Part No.
RED/BLACK	417-7920-001



BNC FEMALE TO MINI-HOOKS MOLDED BREAKOUT

Color	Part No.
RED/BLACK	417-7930-001

Nickel plated BNC male and female connectors molded into breakout. Hooks feature insert molded contact with reliable stainless steel spring for quick secure connections. Wire is 20 AWG.



JOHNSON®

AVAILABLE ON SPECIAL ORDER - MANY PARTS AVAILABLE IN VARIOUS COLORS & LENGTHS

TYPICAL TEST LEADS & PATCH CORDS

SPECIFICATIONS

CONTACTS

BNC Connectors: Crimp (Center contact only)

Male - Gold plated brass

Clamp (Center contact only)

Male - Gold plated brass

Female - Gold plated brass

Mini-Hooks: Gold plated beryllium copper

Standard Banana Plug: Nickel plated brass body
Nickel silver alloy spring

BODY

Molded Breakout: Male - Nickel plated brass

Female - Nickel plated brass

Alligator Clip: Nickel plated steel

PLASTIC PARTS

Mini-Hooks: Nylon 6/6, polypropylene

Dual Banana Plug: High density polyethylene

Molded Strain Relief: PVC insulation

Molded "Y": PVC insulation

Molded Breakout: Polypropylene

Alligator Clip Boot: Vinyl

Test Lead: ABS

WIRE

Wire from Mini RA Banana Plug: 20 AWG (41 x 36) stranded, tin coated, rubber insulation

Wire from Test Lead: 18 AWG (65 x 36) stranded, tin coated, rubber insulation

Wire from "Y" Termination: 20 AWG (40 x 36) stranded, tin coated, extra flexible, polyvinyl insulation

Wire from Molded Breakout: 20 AWG (40 x 36) stranded, tin coated, extra flexible polyvinyl

Dual Banana Plug and BNC Connectors: Black 50 ohm RG-58 C/U, 75 ohm RG-58 B/U

All Twisted Pair: Gray, two conductor 18 AWG (65 x 36) stranded, tin coated, vinyl jacket and insulation

CABLE ASSEMBLY RATINGS [†]

20 AWG (PVC): 3000 WVrms

18 AWG (Rubber): 3500 WVrms

20 AWG (Rubber): 1000 WVrms

Twisted Pair: 200 WVrms

RG-58 C/U: 350 WVrms

RG-59 B/U: 350 WVrms

18 AWG (PVC): 3500 WVrms

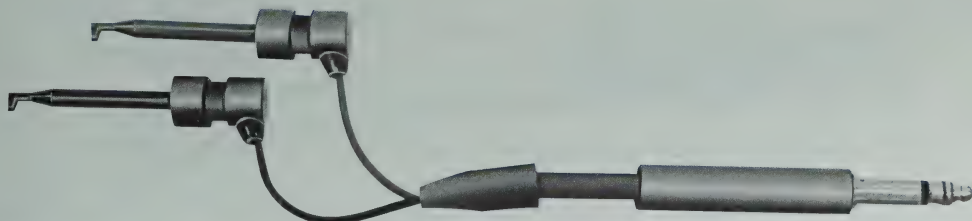
TEST LEADS
PATCH CORDS



MINI-HOOK TO INSULATED MINIGATOR CLIP

PART NO. 417-19xx-5xx

Hook features insert molded part with reliable stainless steel spring for quick secure connection. Tough nickel plated steel clip with matching insulation boot. Wire is 20 AWG, available in six standard colors.



MINI-HOOKS TO WE310 PHONE PLUG

PART NO. 417-7977-1xx

Hooks feature insert molded parts with reliable steel spring for quick secure connections. Available in red and black colors. Phone plug available in standard red color (WE310-R) for use with equipment having WE310 phone jacks. Cable is two conductor twisted pair, 18 AWG, gray vinyl jacket.



STRAIN-RELIEVED BNC PLUG TO MINI-HOOKS

PART NO. 417-7923-1xx

BNC male connector crimped to RG-58 C/U cable. Molded strain relief covers cable connections for long service life. Hooks feature insert molded parts with reliable stainless steel spring for quick secure connections. Wire is 20 AWG ("Y" termination).

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TYPICAL TEST LEADS & PATCH CORDS

AVAILABLE ON SPECIAL ORDER - MANY PARTS AVAILABLE IN VARIOUS COLORS & LENGTHS



TEST LEAD TO STANDARD STACKING BANANA PLUG

PART NO. 217-860x-011

Test lead features molded flanges for protection against electrical shock, anti-slip ribs for a better grip, and a threaded tip that accepts spade lugs, alligator clips or other accessories. Tip O.D. is .080. Banana plug offers stacking feature for multiple meter access. It can be used with standard .166" dia. banana jacks. Insulated body is tapered with anti-slip ribs for safety in removal from test equipment. Wire is 18 AWG, poly vinyl insulation. Test lead available in red and black.



STANDARD STACKING BANANA PLUG TO MINIATURE STACKING BANANA PLUG

PART NO. 417-48xx-2xx

Standard banana plug can be used with standard .166" dia. banana jacks. Miniature banana plug can be used with miniature .104" dia. banana jacks. Insulated body features tapered back with anti-slip ribs for easy, safe removal from test equipment. Wire is 20 AWG. Available in six standard colors.



MINIATURE STACKING BANANA PLUG TO INSULATED MINIGATOR CLIP

PART NO. 417-14xx-5xx

Plug can be used with miniature .104" dia. banana jacks. Insulated body features tapered back with anti-slip ribs for easy, safe removal from test equipment. Tough nickel plated steel clip with matching insulation boot. Wire is 20 AWG. Available in six standard colors.



STANDARD STACKING BANANA PLUG TO INSULATED ALLIGATOR CLIP

PART NO. 417-18xx-3xx

Standard banana plug can be used with standard .166" dia. banana jacks. Insulated body features tapered back with anti-slip ribs for easy, safe removal from test equipment. Tough nickel plated steel clip with matching insulation boot. Wire is 18 AWG polyvinyl insulation. Clip available in red and black.

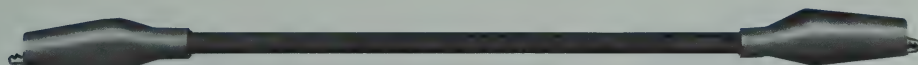


STANDARD STACKING BANANA PLUG TO INSULATED MINIGATOR CLIP

PART NO. 417-18xx-5xx

Standard banana plug can be used with standard .166" dia. banana jacks. Insulated body features tapered back with anti-slip ribs for easy, safe removal from test equipment. Tough nickel plated steel clip with matching insulation boot. Wire is 20 AWG. Available in six standard colors.

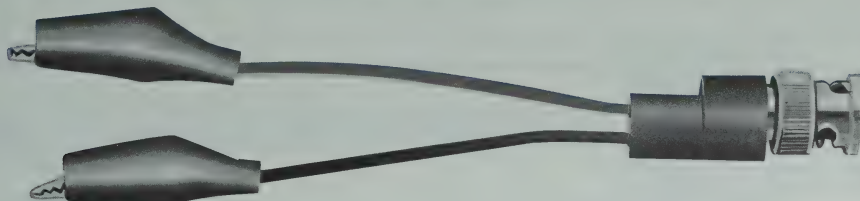
E.F. JOHNSON COMPANY, Component Products, P.O. Box 59089, Minneapolis, Minnesota 55459-0089
 OUTSTATE CALL TOLL FREE: 1-800-247-8256 IN MINN. CALL: 1-507-835-6222 TLX: 290470 FAX: 1-507-835-8356



INSULATED MINIGATOR CLIP TO INSULATED MINIGATOR CLIP

PART NO. 417-11xx-5xx

Tough nickel plated steel clips with matching insulation boots. Connections are soldered for reliability and long life. Wire is 20 AWG. Available in six standard colors.



BNC MALE TO INSULATED MINIGATOR CLIPS - MOLDED BREAKOUT

PART NO. 417-7208-5xx

Nickel plated steel male connector molded into breakout. Tough nickel plated steel clips with matching insulation boots. Wire is 20 AWG. Clips available in red and black.



BNC MALE - MOLDED BREAKOUT TO STANDARD STACKING BANANA PLUGS

PART NO. 417-7298-1xx

Nickel plated BNC male connector molded into breakout. Standard banana plug can be used with standard .166" dia. banana jacks. Insulated body features tapered back with anti-slip ribs for easy, safe removal from test equipment. Wire is 20 AWG. Plugs available in red and black.



BNC MALE - MOLDED BREAKOUT TO MINIATURE STACKING BANANA PLUGS

PART NO. 417-7268-1xx

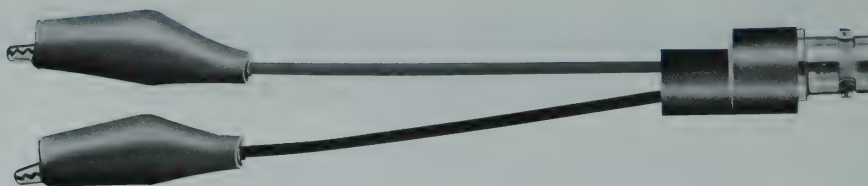
Nickel plated BNC male connector molded into breakout. Miniature banana plug can be used with miniature .104" dia. banana jacks. Insulated body features tapered back with anti-slip ribs for easy, safe removal from test equipment. Wire is 20 AWG. Plugs available in red and black.



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AVAILABLE ON SPECIAL ORDER - MANY PARTS AVAILABLE IN VARIOUS COLORS & LENGTHS

TYPICAL TEST LEADS & PATCH CORDS



BNC FEMALE TO INSULATED MINIGATOR CLIPS - MOLDED BREAKOUT

PART NO. 417-7308-5xx

Nickel plated BNC female connector molded into breakout. Tough nickel plated steel clips with matching insulation boots. Wire is 20 AWG. Clips available in red and black.



BNC FEMALE - MOLDED BREAKOUT TO STANDARD STACKING BANANA PLUGS

PART NO. 417-7398-1xx

Nickel plated BNC female connector molded into breakout. Standard banana plug can be used with standard .166" dia. banana jacks. Insulated body features tapered back with anti-slip ribs for easy, safe removal from test equipment. Wire is 20 AWG. Plugs available in red and black.



BNC FEMALE - MOLDED BREAKOUT TO MINIATURE STACKING BANANA PLUGS

PART NO. 417-7368-1xx

Nickel plated BNC female connector molded into breakout. Miniature banana plug can be used with miniature .104" dia. banana jacks. Insulated body features tapered back with anti-slip ribs for easy, safe removal from test equipment. Wire is 20 AWG. Plugs available in red and black.



BNC MALE - MOLDED BREAKOUT TO BARE ENDS

PART NO. 417-7208-1xx

Nickel plated BNC male connector molded into breakout. Terminates in wire ends for custom connections. Wire is 20 AWG.

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BNC FEMALE – MOLDED BREAKOUT TO BARE ENDS

PART NO. 417-7308-1xx

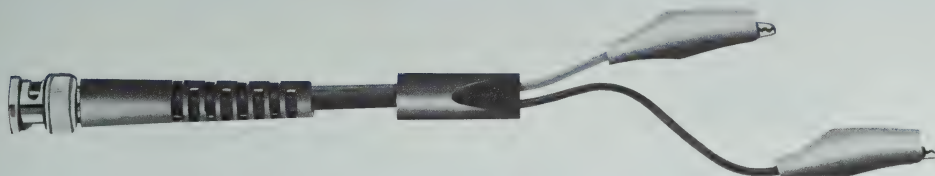
Nickel plated BNC female connector molded into breakout. Terminates in wire ends for custom connections. Wire is 20 AWG.



DUAL STACKING BANANA PLUG TO STRAIN-RELIEVED BNC PLUG

PART NO. 417-7283-1xx

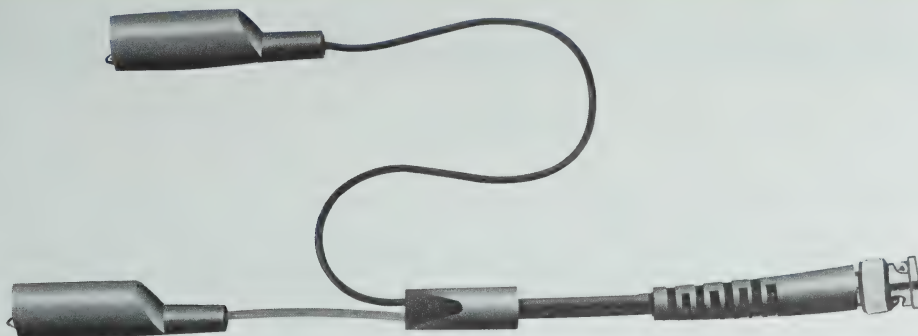
Dual stacking banana plug features marked ground connection, rear and side stacking for multiple parallel stacking connection capability. BNC plug connector has molded strain relief for long service life. Cable is RG-58 C/U.



STRAIN-RELIEVED BNC PLUG TO INSULATED MINIGATOR CLIPS

PART NO. 417-7203-1xx

BNC plug connector has molded strain relief for long service life. Tough nickel plated steel clips with matching insulation boots. Wire is RG-58 C/U cable and 20 AWG ("Y" termination).



STRAIN-RELIEVED BNC PLUG TO INSULATED ALLIGATOR CLIPS

PART NO. 417-7213-1xx

BNC plug connector has molded strain relief for long service life. Tough nickel plated steel clips with matching insulation boots. Wire is RG-58 C/U cable and 20 AWG ("Y" termination).

**JOHNSON®****TYPICAL TEST LEADS & PATCH CORDS**

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**DUAL STACKING BANANA PLUG TO INSULATED MINIGATOR CLIPS**

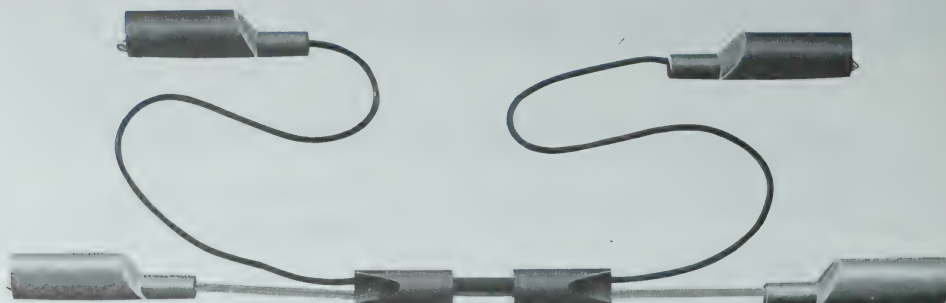
PART NO. 417-780x-1xx

Dual stacking banana plug features marked ground connection, rear and side stacking for multiple parallel stacking connection capability. Tough nickel plated steel clips with matching insulation boots. Wire is RG-58 C/U or twisted pair cable and 20 AWG ("Y" termination).

**BNC PLUG TO INSULATED MINIGATOR CLIPS**

PART NO. 417-7201-1xx

Clamp type BNC connector. Tough nickel plated steel clips with matching insulation boots. Wire is RG-58 C/U cable and 20 AWG ("Y" termination).

**INSULATED ALLIGATOR CLIPS TO INSULATED ALLIGATOR CLIPS**

PART NO. 417-11xx-3xx

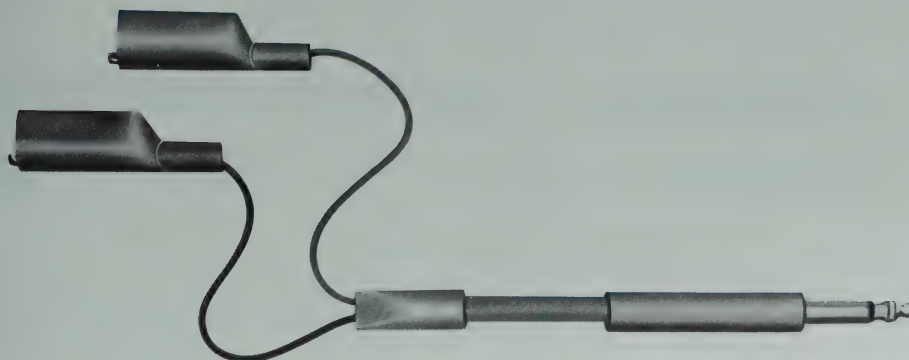
Tough nickel plated steel clips with red and black matching insulation boots. Connections are soldered for reliability and long life. Wire is RG-58 C/U cable and 20 AWG ("Y" termination).

**WE310 PHONE PLUG TO WE310 PHONE PLUG**

PART NO. 417-7777-1xx

Phone plugs available in standard red color (WE310-R) for use with equipment having WE310 phone jacks. Cable is two conductor twisted pair, 18 AWG, gray vinyl jacket.

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WE310 PHONE PLUG TO INSULATED ALLIGATOR CLIPS

PART NO. 417-7718-1xx

Phone plug available in standard red color (WE310-R) for use with equipment having WE310 phone jacks. Tough nickel plated steel clips with matching insulation boots. Cable is two conductor twisted pair, 18 AWG, gray vinyl jack and 20 AWG ("Y" termination).

TEST LEADS
PATCH CORDS



STRAIN-RELIEVED PHONO PLUG TO STRAIN-RELIEVED PHONO PLUG

PART NO. 417-744x-1xx

Phono plug, brass, nickel plated, crimped to RG-58 C/U (50 ohm) or RG-59 B/U (75 ohm) cable. Molded strain relief covers cable connections for long service life.



STRAIN-RELIEVED BNC PLUG TO STRAIN-RELIEVED PHONO PLUG

PART NO. 417-742x-xxx

BNC plug connector and phono plug, brass, nickel plated, crimped to RG-58 C/U (50 ohm) or RG-59 B/U (75 ohm) cable. Molded strain relief on each end covers cable connections for long service life.

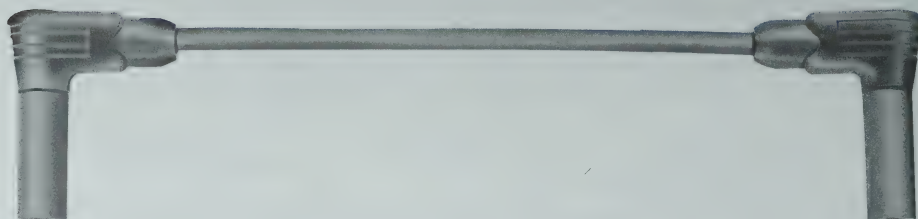


STRAIN-RELIEVED PHONO PLUG TO RIGHT ANGLE BNC PLUG

PART NO. 417-7420-1xx

Phono plug, brass, nickel plated, with molded strain relief for long service life. BNC plug, right angle, brass body, tarnish resistant plating. Center contact, brass, gold plated. Cable is RG-58 C/U.

TEST LEADS
PATCH CORDS



SHROUDED RIGHT ANGLE BANANA PLUG TO SHROUDED RIGHT ANGLE BANANA JACK

PART NO. 417-680x-3xx

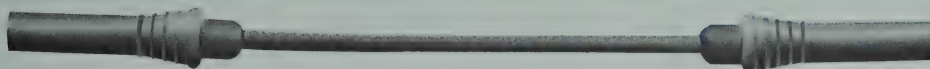
No exposed metal. Will not short out when dropped. Designed for use where vertical space is limited. Insulation is ABS. Wire, 18 AWG, rubber insulated. For cutaway view, see page number 70.



UNSHROUDED STRAIGHT BANANA PLUG – BOTH ENDS

PART NO. 417-88xx-3xx

Excellent for general lab work. Permits interconnection between test instruments. Insulation is ABS. Wire, 18 AWG rubber insulated. Can be used with standard .166" dia. banana jack.



SHROUDED STRAIGHT BANANA PLUG – BOTH ENDS

PART NO. 417-88xx-6xx

No exposed metal. Will not short out when dropped. Insulation is ABS. Wire, 18 AWG rubber insulated. For cutaway view, see page number 70.

TEST LEADS
 PATCH CORDS



SHROUDED STRAIGHT BANANA PLUG TO UNSHROUDED STRAIGHT BANANA PLUG

PART NO. 417-80xx-3xx

No exposed metal on shrouded banana plug. Permits interconnection between test instruments. Insulation is ABS. Wire, 18 AWG rubber insulated. Banana plug can be used with standard .166" dia. banana jack. For cutaway view, see page number 70.



TEST LEAD TO SHROUDED MINIATURE RIGHT ANGLE BANANA PLUG

PART NO. 217-44xx-011

No exposed metal on banana plug. Miniature banana plug can be used with miniature .104" dia. banana jack. Insulation is ABS. Wire, 20 AWG rubber insulated.

Johnson offers a complete line of spacers for economical mounting or stacking of printed circuit boards or other devices. Johnson spacers are available in the four most widely used materials. Lightweight aluminum spacers are iridated to provide the desired corrosion resistance. Stainless steel spacers are non-magnetic and impervious to corrosion. Nickel-plated brass spacers offer superior corrosion resistance. Nylon spacers provide insulating capability. Special plating is available, including gold plate or black anodizing. Johnson has a full range of mounting styles available, including clearance holes, threaded holes, combination stud and threaded holes, and male and female swage mounts. Both round and hexagonal shapes are available in various lengths.

ORDERING INFORMATION

For a numerical index of the complete product line, refer to the end of this catalog, starting on page 113.

Each product listing in this section includes mechanical drawings and part numbering information. Material and finish specifications are listed for each item.

TO ORDER

Telephone your local Johnson distributor for the spacer you require. Refer to the following pages to obtain the part number for the style, material and size of spacer you need. If your needs can't be met by one of our hundreds of standard styles, contact the factory at 1-800-247-8256 or write Component Marketing Manager, P.O. Box 59089, Minneapolis, MN 55459-0089.

Aluminum	89, 90
Brass/Nickel Plate	93-95
Nylon	96
Stainless Steel	91, 92
Spacer Kit	96
Numerical Index	113-116

Round Tubular

SPECIFICATIONS

Material: Aluminum alloy 2011T3, per ASTM B-211, latest revision

Finish: Clear iridite #14 chromate conversion finish per MIL-C-5541C



3/16" OUTSIDE DIAMETER		
	CLEARANCE HOLE	
LENGTH	#2(.093")	#4(.115")
.125	313-1317-004	313-1327-004
.187	313-1317-006	313-1327-006
.250	313-1317-008	313-1327-008
.312	313-1317-010	313-1327-010
.375	313-1317-012	313-1327-012
.437	313-1317-014	313-1327-014
.500	313-1317-016	313-1327-016
.562		313-1327-018
.625		313-1327-020
.687		313-1327-022
.750	313-1317-024	313-1327-024

1/4" OUTSIDE DIAMETER			
	CLEARANCE HOLE		
LENGTH	#4(.115")	#6(.140")	#8(.171")
.125	313-1427-004	313-1437-004	313-1447-004
.187	313-1427-006	313-1437-006	313-1447-006
.250	313-1427-008	313-1437-008	313-1447-008
.312	313-1427-010	313-1437-010	313-1447-010
.375	313-1427-012	313-1437-012	313-1447-012
.437	313-1427-014	313-1437-014	313-1447-014
.500	313-1427-016	313-1437-016	313-1447-016
.562	313-1427-018	313-1437-018	313-1447-018
.625	313-1427-020	313-1437-020	313-1447-020
.687	313-1427-022	313-1437-022	313-1447-022
.750	313-1427-024	313-1437-024	313-1447-024
.812	313-1427-026	313-1437-026	313-1447-026
.875	313-1427-028	313-1437-028	313-1447-028
.937	313-1427-030	313-1437-030	313-1447-030
1.000	313-1427-032	313-1437-032	313-1447-032

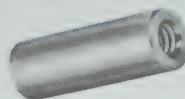
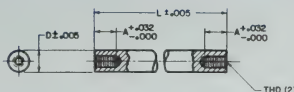
5/16" OUTSIDE DIAMETER	
	CLEARANCE HOLE
LENGTH	#10(.200")
.125	313-1557-004
.187	313-1557-006
.250	313-1557-008
.312	313-1557-010
.375	313-1557-012
.437	313-1557-014
.500	313-1557-016
.562	313-1557-018
.625	313-1557-020
.687	313-1557-022
.750	313-1557-024
.812	313-1557-026
.875	313-1557-028
.937	313-1557-030
1.000	313-1557-032

Round Threaded

SPECIFICATIONS

Material: Aluminum alloy 2011T3, per ASTM B-211, latest revision

Finish: Clear iridite #14 chromate conversion finish per MIL-C-5541C



1/4" OUTSIDE DIAMETER			
	THREAD SIZE		
LENGTH	*4-40	*6-32	*8-32
.125	313-2477-004	313-2487-004	313-2497-004
.250	313-2477-008	313-2487-008	313-2497-008
.375	313-2477-012	313-2487-012	313-2497-012
.500	313-2477-016	313-2487-016	313-2497-016
.625	313-2477-020	313-2487-020	313-2497-020
.750	313-2477-024	313-2487-024	313-2497-024
.875	313-2477-028	313-2487-028	313-2497-028
1.00	313-2477-032	313-2487-032	313-2497-032
1.25	313-2477-040	313-2487-040	313-2497-040
1.50	313-2477-048	313-2487-048	313-2497-048

5/16" OUTSIDE DIAMETER	
	THREAD SIZE
LENGTH	*10-32
.250	313-2507-008
.312	313-2507-010
.375	313-2507-012
.437	313-2507-014
.500	313-2507-016

TAP DEPTH CHART		
THREAD	TAP	DEPTH "A"
2-56	UNC	.188
4-40	UNC	.250
6-32	UNC	.375
8-32	UNC	.375
10-32	UNF	.375

* On threaded spacers, for 4-40, 6-32, 8-32, and 10-32 thread sizes, when length is 1" or less tap is continuous through spacer. For lengths greater than 1" see tap depth chart. For all spacers except Stainless Steel.

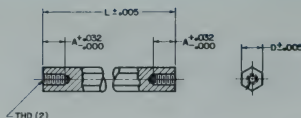
NOTE: All dimensions are in inches.

Hex Threaded

SPECIFICATIONS

Material: Aluminum alloy 2011T3, per ASTM B-211, latest revision

Finish: Clear iridite #14 chromate conversion finish per MIL-C-5541C



3/16" ACROSS FLATS		
THREAD SIZE		
LENGTH	2-56	*4-40
.125	313-6367-004	313-6377-004
.187	313-6367-006	313-6377-006
.250	313-6367-008	313-6377-008
.312	313-6367-010	313-6377-010
.375	313-6367-012	313-6377-012
.437	313-6367-014	313-6377-014
.500	313-6367-016	313-6377-016
.562		313-6377-018
.625		313-6377-020
.687		313-6377-022
.750		313-6377-024
.812		313-6377-026
.875		313-6377-028
.937		313-6377-030
1.000		313-6377-032

1/4" ACROSS FLATS			
THREAD SIZE			
LENGTH	*4-40	*6-32	*8-32
.125	313-6477-004	313-6487-004	313-6497-004
.250	313-6477-008	313-6487-008	313-6497-008
.375	313-6477-012	313-6487-012	313-6497-012
.500	313-6477-016	313-6487-016	313-6497-016
.625	313-6477-020	313-6487-020	313-6497-020
.750	313-6477-024	313-6487-024	313-6497-024
.875	313-6477-028	313-6487-028	313-6497-028
1.000	313-6477-032	313-6487-032	313-6497-032
1.125	313-6477-036	313-6487-036	313-6497-036
1.250	313-6477-040	313-6487-040	313-6497-040
1.375	313-6477-044	313-6487-044	313-6497-044
1.500	313-6477-048	313-6487-048	313-6497-048

TAP DEPTH CHART		
THREAD	TAP	DEPTH "A"
2-56	UNC	.188
4-40	UNC	.250
6-32	UNC	.375
8-32	UNC	.375

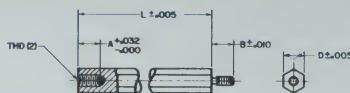
*On threaded spacers, for 4-40, 6-32, 8-32, and 10-32 thread sizes, when length is 1" or less tap is continuous through spacer. For lengths greater than 1" see tap depth chart. For all spacers except Stainless Steel.
NOTE: All dimensions are in inches

Male/Female Hex

SPECIFICATIONS

Material: Aluminum alloy 2011T3, per ASTM B-211, latest revision

Finish: Clear iridite #14 chromate conversion finish per MIL-C-5541C



1/4" ACROSS FLATS			
THREAD SIZE			
LENGTH	4-40 HOLE A: 1/4" STUD B: 3/16"	6-32 HOLE A: 3/8" STUD B: 1/4"	8-32 HOLE A: 7/16" STUD B: 3/8"
.250	313-7477-008*	313-7487-008*	313-7497-008*
.375	313-7477-012**	313-7487-012**	313-7497-012**
.500	313-7477-016***	313-7487-016	313-7497-016***
.625	313-7477-020	313-7487-020	313-7497-020
.750	313-7477-024	313-7487-024	313-7497-024
.875	313-7477-028	313-7487-028	313-7497-028
1.000	313-7477-032	313-7487-032	313-7497-032
1.125	313-7477-036	313-7487-036	313-7497-036
1.250	313-7477-040	313-7487-040	313-7497-040
1.375	313-7477-044	313-7487-044	313-7497-044
1.500	313-7477-048	313-7487-048	313-7497-048
1.625	313-7477-052	313-7487-052	313-7497-052
1.750	313-7477-056	313-7487-056	313-7497-056
2.000	313-7477-064	313-7487-064	313-7497-064

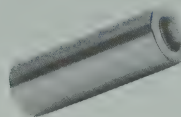
* Hole depth is 1/8"
** Hole depth is 1/4"
*** Hole depth is 3/8"

Round Tubular

SPECIFICATIONS

Material: Stainless Steel, type 303, per ASTM A-581, latest revision

Finish: Passivate per MIL-F-14072, E300



3/16" OUTSIDE DIAMETER	
LENGTH	CLEARANCE HOLE #4(.115")
.125	317-1328-004
.187	317-1328-006
.250	317-1328-008
.312	317-1328-010
.375	317-1328-012
.437	317-1328-014
.500	317-1328-016

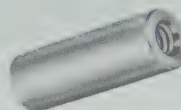
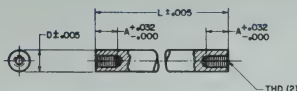
1/4" OUTSIDE DIAMETER	
LENGTH	CLEARANCE HOLE #6(.140")
.125	317-1438-004
.187	317-1438-006
.250	317-1438-008
.312	317-1438-010
.375	317-1438-012
.437	317-1438-014
.500	317-1438-016

Round Threaded

SPECIFICATIONS

Material: Stainless Steel, type 303, per ASTM A-581 latest revision

Finish: Passivate per MIL-F-14072, E300



1/4" OUTSIDE DIAMETER		
LENGTH	THREAD SIZE	
	4-40	6-32
.125	317-2478-004	317-2488-004
.250	317-2478-008	317-2488-008
.375	317-2478-012	317-2488-012
.500	317-2478-016	317-2488-016
.625	317-2478-020	317-2488-020
.750	317-2478-024	317-2488-024
.875	317-2478-028	317-2488-028
1.000	317-2478-032	317-2488-032

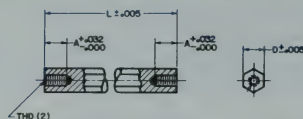
TAP DEPTH CHART		
THREAD	TAP	DEPTH "A"
2-56	UNC	.188
4-40	UNC	.250
6-32	UNC	.375
8-32	UNC	.375
10-32	UNF	.375

Hex Threaded

SPECIFICATIONS

Material: Stainless Steel, type 303, per ASTM A-581, latest revision

Finish: Passivate per MIL-F-14072, E300



3/16" ACROSS FLATS	
LENGTH	THREAD SIZE
.125	317-6378-004
.187	317-6378-006
.250	317-6378-008
.312	317-6378-010
.375	317-6378-012
.437	317-6378-014
.500	317-6378-016
.562	317-6378-018
.625	317-6378-020
.687	317-6378-022
.750	317-6378-024

1/4" ACROSS FLATS		
LENGTH	THREAD SIZE	
	4-40	6-32
.125	317-6478-004	317-6488-004
.187	317-6478-006	317-6488-006
.250	317-6478-008	317-6488-008
.312	317-6478-010	317-6488-010
.375	317-6478-012	317-6488-012
.437	317-6478-014	317-6488-014
.500	317-6478-016	317-6488-016
.562	317-6478-018	317-6488-018
.625	317-6478-020	317-6488-020
.750	317-6478-024	317-6488-024
.875	317-6478-028	317-6488-028
1.000	317-6478-032	317-6488-032
1.250	317-6478-040	317-6488-040
1.500	317-6478-048	317-6488-048
1.750	317-6478-056	317-6488-056
2.000	317-6478-064	317-6488-064

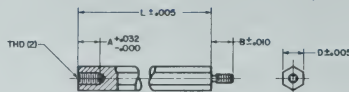
TAP DEPTH CHART		
THREAD	TAP	DEPTH "A"
2-56	UNC	.188
4-40	UNC	.250
6-32	UNC	.375
8-32	UNC	.375
10-32	UNF	.375

Male/Female Hex

SPECIFICATIONS

Material: Stainless Steel, type 303, per ASTM A-581, latest revision

Finish: Passivate per MIL-F-14072, E300



3/16" ACROSS FLATS	
LENGTH	THREAD SIZE
	4-40 HOLE A-1/4" STUD B-3/16"
.250	317-7378-008*
.375	317-7378-012**
.500	317-7378-016***
.625	317-7378-020
.750	317-7378-024
.875	317-7378-028
1.000	317-7378-032

1/4" ACROSS FLATS			
LENGTH	THREAD SIZE		
	4-40 HOLE A-1/4" STUD B-3/16"	6-32 HOLE A-3/8" STUD B-1/4"	8-32 HOLE A-7/16" STUD B-3/8"
.250	317-7478-008*	317-7488-008*	317-7498-008*
.375	317-7478-012**	317-7488-012**	317-7498-012**
.500	317-7478-016***	317-7488-016***	317-7498-016***
.625	317-7478-020	317-7488-020	317-7498-020
.750	317-7478-024	317-7488-024	317-7498-024
.875	317-7478-028	317-7488-028	317-7498-028
1.000	317-7478-032	317-7488-032	317-7498-032

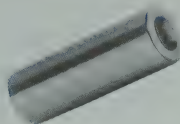
*Hole depth is 1/8"
 **Hole depth is 1/4"
 ***Hole depth is 3/8"

Round Tubular

SPECIFICATIONS

Material: Brass, CDA alloy 360, per QQ-B-626D, latest revision or CDA alloy 353 per QQ-B-626D, latest revision

Finish: Nickel plate .0001" per QQ-N-290 Type VII (QC)



3/16" OUTSIDE DIAMETER	
	CLEARANCE HOLE
LENGTH	#4(.115")
.125	312-1323-004
.187	312-1323-006
.250	312-1323-008
.312	312-1323-010
.375	312-1323-012
.437	312-1323-014
.500	312-1323-016
.562	312-1323-018
.625	312-1323-020
.687	312-1323-022
.750	312-1323-024

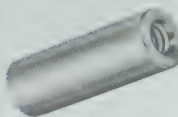
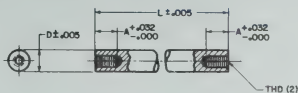
1/4" OUTSIDE DIAMETER			
	CLEARANCE HOLE		
LENGTH	#4(.115")	#6(.140")	#8(.171")
.125	312-1423-004	312-1433-004	312-1443-004
.187	312-1423-006	312-1433-006	312-1443-006
.250	312-1423-008	312-1433-008	312-1443-008
.312	312-1423-010	312-1433-010	312-1443-010
.375	312-1423-012	312-1433-012	312-1443-012
.437	312-1423-014	312-1433-014	312-1443-014
.500	312-1423-016	312-1433-016	312-1443-016
.562	312-1423-018	312-1433-018	312-1443-018
.625	312-1423-020	312-1433-020	312-1443-020
.687	312-1423-022	312-1433-022	312-1443-022
.750	312-1423-024	312-1433-024	312-1443-024
1.000	312-1423-032	312-1433-032	312-1443-032

Round Threaded

SPECIFICATIONS

Material: Brass, CDA alloy 360, per QQ-B-626D, latest revision or CDA alloy 353 per QQ-B-626D, latest revision

Finish: Nickel plate .0001" QQ-N-290 Type VII (QC)



3/16" OUTSIDE DIAMETER		
	THREAD SIZE	
LENGTH	*2-56	*4-40
.125	312-2363-004	312-2373-004
.187	312-2363-006	312-2373-006
.250	312-2363-008	312-2373-008
.312	312-2363-010	312-2373-010
.375	312-2363-012	312-2373-012
.437	312-2363-014	312-2373-014
.500	312-2363-016	312-2373-016
.562	312-2363-018	312-2373-018
.625	312-2363-020	312-2373-020
.687	312-2363-022	312-2373-022
.750	312-2363-024	312-2373-024
.812	312-2363-026	312-2373-026
.875	312-2363-028	312-2373-028
.937	312-2363-030	312-2373-030
1.000	312-2363-032	312-2373-032

1/4" OUTSIDE DIAMETER			
	THREAD SIZE		
LENGTH	*4-40	*6-32	*8-32
.125	312-2473-004	312-2483-004	312-2493-004
.187	312-2473-006	312-2483-006	312-2493-006
.250	312-2473-008	312-2483-008	312-2493-008
.312	312-2473-010	312-2483-010	312-2493-010
.375	312-2473-012	312-2483-012	312-2493-012
.437	312-2473-014	312-2483-014	312-2493-014
.500	312-2473-016	312-2483-016	312-2493-016
.562	312-2473-018	312-2483-018	312-2493-018
.625	312-2473-020	312-2483-020	312-2493-020
.687	312-2473-022	312-2483-022	312-2493-022
.750	312-2473-024	312-2483-024	312-2493-024
.812	312-2473-026	312-2483-026	312-2493-026
.875	312-2473-028	312-2483-028	312-2493-028
.937	312-2473-030	312-2483-030	312-2493-030
1.000	312-2473-032	312-2483-032	312-2493-032

TAP DEPTH CHART		
THREAD	TAP	DEPTH "A"
2-56	UNC	.188
4-40	UNC	.250
6-32	UNC	.375
8-32	UNC	.375

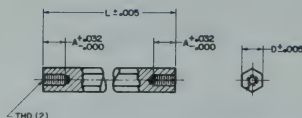
On threaded spacers, for 4-40, 6-32, 8-32, and 10-32 thread sizes, when length is 1" or less tap is continuous through spacer. For lengths greater than 1" see tap depth chart. For all spacers except Stainless Steel

Hex Threaded

SPECIFICATIONS

Material: Brass, CDA alloy 360, per QQ-B-626D, latest revision or CDA alloy 353 per QQ-B-626D, latest revision

Finish: Nickel plate .0001" QQ-N-290 Type VII (QC)



3/16" ACROSS FLATS		
THREAD SIZE		
LENGTH	*2-56	*4-40
.125	312-6363-004	312-6373-004
.187	312-6363-006	312-6373-006
.250	312-6363-008	312-6373-008
.312	312-6363-010	312-6373-010
.375	312-6363-012	312-6373-012
.437	312-6363-014	312-6373-014
.500	312-6363-016	312-6373-016
.562	312-6363-018	312-6373-018
.625	312-6363-020	312-6373-020
.687	312-6363-022	312-6373-022
.750	312-6363-024	312-6373-024
.812	312-6363-026	312-6373-026
.875	312-6363-028	312-6373-028
.937	312-6363-030	312-6373-030
1.000	312-6363-032	312-6373-032

1/4" ACROSS FLATS			
THREAD SIZE			
LENGTH	*4-40	*6-32	*8-32
.125	312-6473-004	312-6483-004	312-6493-004
.187	312-6473-006	312-6483-006	312-6493-006
.250	312-6473-008	312-6483-008	312-6493-008
.312	312-6473-010	312-6483-010	312-6493-010
.375	312-6473-012	312-6483-012	312-6493-012
.437	312-6473-014	312-6483-014	312-6493-014
.500	312-6473-016	312-6483-016	312-6493-016
.562	312-6473-018	312-6483-018	312-6493-018
.625	312-6473-020	312-6483-020	312-6493-020
.687	312-6473-022	312-6483-022	312-6493-022
.750	312-6473-024	312-6483-024	312-6493-024
.812	312-6473-026	312-6483-026	312-6493-026
.875	312-6473-028	312-6483-028	312-6493-028
.937	312-6473-030	312-6483-030	312-6493-030
1.000	312-6473-032	312-6483-032	312-6493-032

TAP DEPTH CHART		
THREAD	TAP	DEPTH "A"
2-56	UNC	.188
4-40	UNC	.250
6-32	UNC	.375
8-32	UNC	.375
10-32	UNF	.375

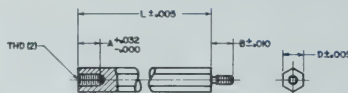
* On threaded spacers, for 4-40, 6-32, 8-32, and 10-32 thread sizes, when length is 1" or less tap is continuous through spacer. For lengths greater than 1" see tap depth chart. For all spacers except Stainless Steel.

Male/Female Hex

SPECIFICATIONS

Material: Brass, CDA alloy 360, per QQ-B-626D, latest revision or CDA alloy 353 per QQ-B-626D, latest revision

Finish: Nickel plate .0001" QQ-N-290 Type VII (QC)



1/4" ACROSS FLATS			
THREAD SIZE			
LENGTH	4-40 HOLE A-1/4" STUD B-3/16"	6-32 HOLE A-3/8" STUD B-1/4"	8-32 HOLE A-7/16" STUD B-3/8"
.250	312-7473-008*	312-7483-008*	312-7493-008*
.375	312-7473-012	312-7483-012	312-7493-012
.500	312-7473-016	312-7483-016	312-7493-016
.625	312-7473-020	312-7483-020	312-7493-020
.750	312-7473-024	312-7483-024	312-7493-024
.875	312-7473-028	312-7483-028	312-7493-028
1.000	312-7473-032	312-7483-032	312-7493-032
1.125	312-7473-036	312-7483-036	312-7493-036

1/4" ACROSS FLATS			
THREAD SIZE			
LENGTH	4-40 HOLE A-1/4" STUD B-3/16"	6-32 HOLE A-3/8" STUD B-1/4"	8-32 HOLE A-7/16" STUD B-3/8"
1.250	312-7473-040	312-7483-040	312-7493-040
1.375	312-7473-044	312-7483-044	312-7493-044
1.500	312-7473-048	312-7483-048	312-7493-048
1.625	312-7473-052	312-7483-052	312-7493-052
1.750	312-7473-056	312-7483-056	312-7493-056
2.000	312-7473-064	312-7483-064	312-7493-064

* Hole depth is 1/8"

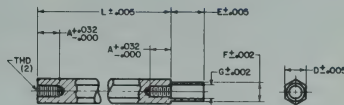
Hex Swage Threaded

SPECIFICATIONS

Material: Brass, CDA alloy 360, per QQ-B-626D, latest revision or CDA alloy 353 per QQ-B-626D,

Material: latest revision

Finish: Nickel plate .0001" QQ-N-290 Type VII (QC)



1/4" ACROSS FLATS								
LENGTH	BOARD THICKNESS	SWAGE			THREAD SIZE			
		E	F	G	4-40	6-32	*8-32	
.250	1/16	.109	.187	.156	312-9473-208	312-9483-208	312-9493-208	
.375	1/16	.109	.187	.156	312-9473-212	312-9483-212	312-9493-212	
.500	1/16	.109	.187	.156	312-9473-216	312-9483-216	312-9493-216	

* Tapped on end opposite swage only.

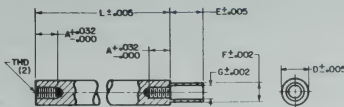
TAP DEPTH CHART		
THREAD	TAP	DEPTH "A"
2-56	UNC	.188
4-40	UNC	.250
6-32	UNC	.375
8-32	UNC	.375
10-32	UNF	.375

Round Swage Threaded

SPECIFICATIONS

Material: Brass, CDA alloy 360, per QQ-B-626D, latest revision or CDA alloy 353 per QQ-B-626D, latest revision

Finish: Nickel plate .0001" QQ-N-290 Type VII (QC)



1/4 OUTSIDE DIAMETER								
LENGTH	BOARD THICKNESS	SWAGE			THREAD SIZE			
		E	F	G	4-40	6-32	*8-32	
.250	1/16	.109	.187	.156	312-2473-208	312-2483-208	312-2493-208	
.375	1/16	.109	.187	.156	312-2473-212	312-2483-212	312-2493-212	
.500	1/16	.109	.187	.156	312-2473-216	312-2483-216	312-2493-216	
.625	1/16	.109	.187	.156	312-2473-220	312-2483-220	312-2493-220	
.750	1/16	.109	.187	.156	312-2473-224	312-2483-224	312-2493-224	
1.000	1/16	.109	.187	.156	312-2473-232	312-2483-232	312-2493-232	

* Tapped on end opposite swage only.

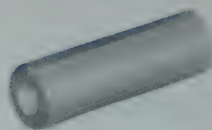
TAP DEPTH CHART		
THREAD	TAP	DEPTH "A"
2-56	UNC	.188
4-40	UNC	.250
6-32	UNC	.375
8-32	UNC	.375
10-32	UNF	.375

Round Tubular

SPECIFICATIONS

Material: Polyamide, type 66 per ASTM D4066, latest revision

Color: Natural



3/16" OUTSIDE DIAMETER		
	CLEARANCE HOLE	
LENGTH	#2(.093")	#4(.115")
.125	314-1311-004	314-1321-004
.187	314-1311-006	314-1321-006
.250	314-1311-008	314-1321-008
.312	314-1311-010	314-1321-010
.375	314-1311-012	314-1321-012
.437	314-1311-014	314-1321-014
.500	314-1311-016	314-1321-016
.562	314-1311-018	314-1321-018
.625	314-1311-020	314-1321-020
.687	314-1311-022	314-1321-022
.750	314-1311-024	314-1321-024

1/4" OUTSIDE DIAMETER			
	CLEARANCE HOLE		
LENGTH	#4(.115")	#6(.140")	#8(.171")
.125	314-1421-004	314-1431-004	314-1441-004
.187	314-1421-006	314-1431-006	314-1441-006
.250	314-1421-008	314-1431-008	314-1441-008
.312	314-1421-010	314-1431-010	314-1441-010
.375	314-1421-012	314-1431-012	314-1441-012
.437	314-1421-014	314-1431-014	314-1441-014
.500	314-1421-016	314-1431-016	314-1441-016
.562	314-1421-018	314-1431-018	314-1441-018
.625	314-1421-020	314-1431-020	314-1441-020
.687	314-1421-022	314-1431-022	314-1441-022
.750	314-1421-024	314-1431-024	314-1441-024

Polyamide Spacers/Bushings

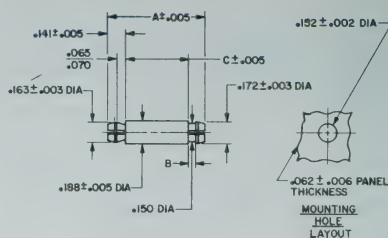
SPECIFICATIONS

Material: Polyamide, type 66 per ASTM D4066, latest revision

Color: Natural

PART NO.	A	B	C
115-0260-001	.396	.065 .070	.125
115-0260-003	.521	.065 .070	.250
115-0260-005	.646	.065 .070	.375

PART NO.	A	B	C
115-0260-007	.771	.065 .070	.500
115-0260-009	.896	.065 .070	.625
115-0260-011	1.021	.065 .070	.750



SPACER KITS

Spacer Design and Prototyping Kit

ALUMINUM, BRASS, STAINLESS STEEL, AND NYLON SPACERS



Kit contains an assortment of 1080 spacers in 1/8", 1/4", 3/8", 1/2", 3/4", and 1" lengths with thread sizes of 4-40 and 6-32 or clearance holes for #4 and #6 screws. 10 or 25 pieces of each part number. Includes round tubular and threaded, hex threaded, male/female and swage types. 435 brass spacers, 450

aluminum, 120 stainless steel and 75 nylon spacers.

PART NO.
312-0009-001

For Swage Mount Spacers



Convenient. 437" (12.7mm) diameter X 4.00" (101.6mm) long staking tool makes assembly of swage mount spacers easy. Tool is machined from tool steel. Ideal for use in engineering labs.

PART NO.
310-0000-901

Johnson air variable or teflon dielectric capacitors have the high Q and low temperature coefficient required for most of today's design needs. The air variables are available as specials with many other platings, shaft lengths, and, in the U and V styles, with .016" plate spacing. You can rely on Johnson for design, quality and on-time delivery of your variable capacitor needs.

ORDERING INFORMATION

For a numerical index of the complete Johnson component product line, refer to the end of this catalog, starting on page 113.

Each product listing in this section includes detailed drawings and part number information. Material, mechanical, electrical and environmental specifications are listed for each item.

TO ORDER

Contact one of over 200 E.F. Johnson distributors for the capacitor you need. Determine the correct part number by referring to the following pages. For the name of your local distributor or if you have special requirements, contact the factory at 1-800-247-8256 or write Component Marketing Manager, P.O. Box 59089, Minneapolis, MN 55459-0089.

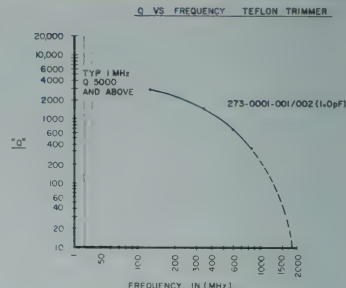
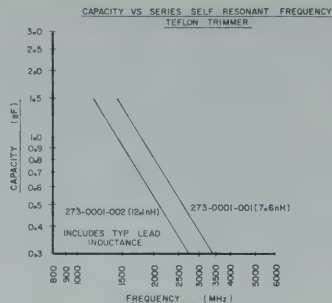
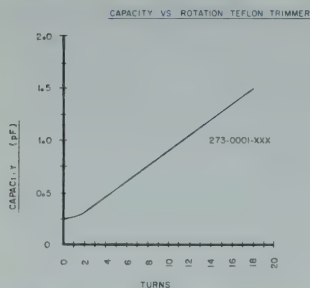
Air	99-104
Miniature Type U	102, 103
Miniature Type V	103, 104
Sub-Miniature Type T	100, 101
Sub-sub-miniature Micro T	99

Capacitor Kit	104
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Teflon	98
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Numerical Index	113-116
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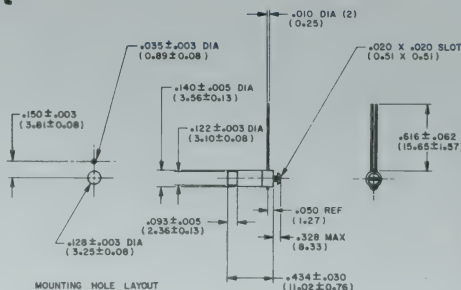
inches (millimeters)



Vertical PC Mount

SPECIFICATIONS

Torque: 0.2-3.0 oz. in. (15-216 gm.cm.)
Working Voltage: 1000 VDC †
Insulation Resistance: 10⁵ megohm
Q Factor: 2000 at 1 MHz
Operating Temperature: -55°C to +150°C
Temperature Coefficient: +50 ± 50 ppm/°C



FEATURES:

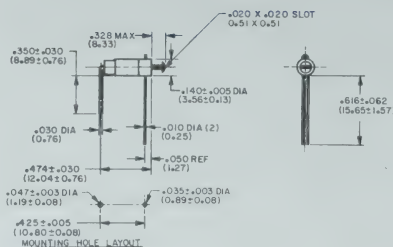
- Low lead inductance
- High resolution and low temperature coefficient
- Mechanical and solder attachment of terminals for ruggedness
- Specifications comparable to air dielectric capacitors
- Small size and low cost

PART NO.	PLATING	GUARANTEED CAPACITY (pF)	
		MAX./MIN.	MIN./MAX.
273-0001-001	Gold	.25	1.5
273-0001-101	Silver	.25	1.5

Horizontal PC Mount

SPECIFICATIONS

Torque: 0.2-3.0 oz. in. (15-216 gm.cm.)
Working Voltage: 1000 VDC †
Insulation Resistance: 10⁵ megohm
Q Factor: 2000 at 1 MHz
Operating Temperature: -55°C to +150°C
Temperature Coefficient: +50 ± 50 ppm/°C



FEATURES:

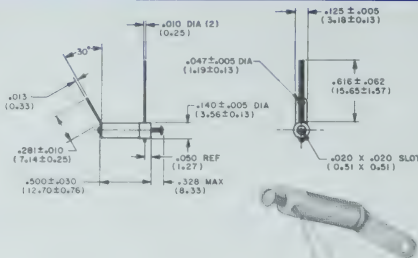
- Low lead inductance
- High resolution and low temperature coefficient
- Mechanical and solder attachment of terminals for ruggedness
- One piece stator and stator terminal construction
- Specifications comparable to air dielectric capacitors
- Small size and low cost

PART NO.	PLATING	GUARANTEED CAPACITY (pF)	
		MAX./MIN.	MIN./MAX.
273-0001-012	Gold	.25	1.5
273-0001-112	Silver	.25	1.5

Solder Lug Mount

SPECIFICATIONS

Torque: 0.2-3.0 oz. in. (15-216 gm.cm.)
Working Voltage: 1000 VDC †
Insulation Resistance: 10⁵ megohm
Q Factor: 2000 at 1 MHz
Operating Temperature: -55°C to +150°C
Temperature Coefficient: +50 ± 50 ppm/°C



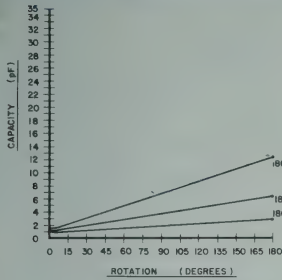
FEATURES:

- Low lead inductance
- High resolution and low temperature coefficient
- Mechanical and solder attachment of terminals for ruggedness
- Specifications comparable to air dielectric capacitors
- Small size and low cost

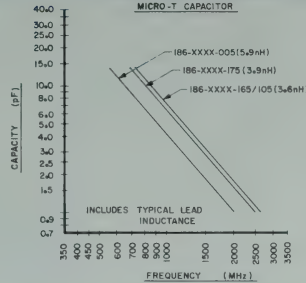
PART NO.	PLATING	GUARANTEED CAPACITY (pF)	
		MAX./MIN.	MIN./MAX.
273-0001-002	Gold	.25	1.5
273-0001-102	Silver	.25	1.5

*Teflon is a registered trade name of Dupont

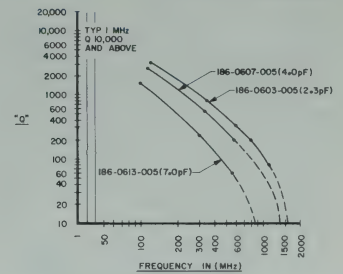
CAPACITY vs. ROTATION MICRO-T CAPACITOR



CAPACITY VS. SERIES SELF RESONANT FREQUENCY MICRO-T CAPACITOR



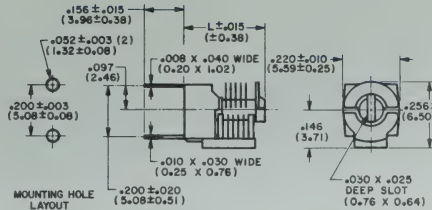
Q VS. FREQUENCY MICRO-T CAPACITOR



Vertical PC Mount

SPECIFICATIONS

Torque: 0.3-3.5 oz. in. (22-252 gm.cm.)
 Working Voltage: 100 VDC †
 Insulation Resistance: 10⁵ megohm
 Q Factor: 2000 at 1 MHz
 Operating Temperature: -55°C to +125°C
 Temperature Coefficient: +45 ± 45 ppm/°C
 Nominal Air Gap: .006" (0.15mm)



FEATURES:

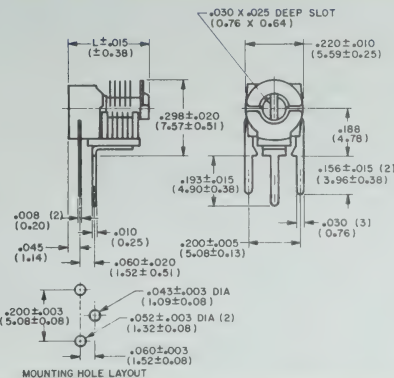
- Low loss ceramic base for stability
- Mounting same as Micro-J® series
- Stator attachment with high temperature solder (232°C)
- Silver plated machined plates

PART NUMBER	MARKING	NOMINAL CAPACITY (pF)		GUARANTEED CAPACITY (pF)		TOTAL PLATES	LENGTH " (mm)
		MINIMUM +20%/-100%	MAXIMUM ±20%	MAX./MIN.	MIN./MAX.		
186-0603-005	M6035	1.0	3.0	1.20	2.40	6	.302 (7.67)
186-0607-005	M6075	1.2	6.5	1.44	5.20	12	.386 (9.80)
186-0613-005	M6135	1.5	12.7	1.80	10.16	24	.554 (14.07)

Horizontal PC Mount

SPECIFICATIONS

Torque: 0.3-3.5 oz. in. (22-252 gm.cm.)
 Working Voltage: 100 VDC †
 Insulation Resistance: 10⁵ megohm
 Q Factor: 2000 at 1 MHz
 Operating Temperature: -55°C to +125°C
 Temperature Coefficient: +45 ± 45 ppm/°C
 Nominal Air Gap: .006" (0.15mm)



FEATURES:

- Low loss ceramic base for stability
- Mounting same as Micro-J® series
- Stator attachment with high temperature solder (232°C)
- Silver plated machined plates

PART NUMBER	MARKING	NOMINAL CAPACITY (pF)		GUARANTEED CAPACITY (pF)		TOTAL PLATES	LENGTH " (mm)
		MINIMUM +20%/-100%	MAXIMUM ±20%	MAX./MIN.	MIN./MAX.		
186-0603-105	M603105	1.0	3.0	1.20	2.40	6	.302 (7.67)
186-0607-105	M607105	1.2	6.5	1.44	5.20	12	.386 (9.80)
186-0613-105	M613105	1.5	12.7	1.80	10.16	24	.554 (14.07)



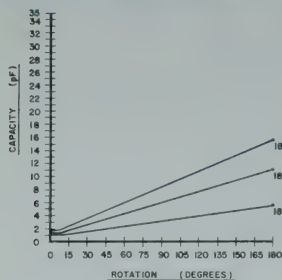
JOHNSON®

APPLICATION • Communications equipment • Test instruments • Remote control circuits

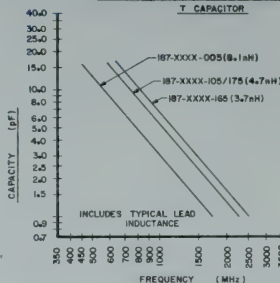
AIR VARIABLE CAPACITOR

SUB-MINIATURE TYPE T

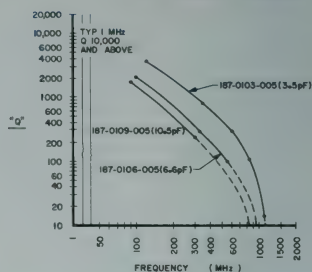
CAPACITY VS ROTATION T CAPACITOR



CAPACITY VS SERIES SELF RESONANT FREQUENCY T CAPACITOR



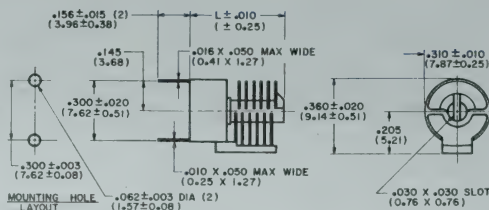
Q VS FREQUENCY T CAPACITOR



Vertical PC Mount

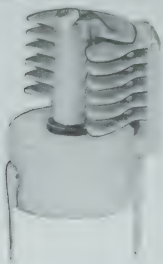
SPECIFICATIONS

Torque: 1.5-8.0 oz. in. (108-576 gm.cm.)
 Working Voltage: 125 VDC †
 Insulation Resistance: 10⁵ megohm
 Q Factor: 2000 at 1 MHz
 Operating Temperature: -55°C to +125°C
 Temperature Coefficient: +45 ± 45 ppm/°C
 Nominal Air Gap: .008" (0.20mm)



FEATURES:

- Low loss ceramic base for stability
- Mounting same as many 10mm ceramic capacitors
- Stator attachment with high temperature solder (232°C)
- Silver plated machined plates

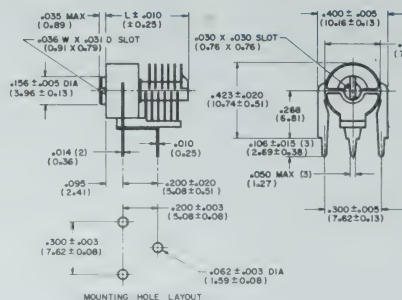


PART NUMBER	MARKING	NOMINAL CAPACITY (pF)		GUARANTEED CAPACITY (pF)		TOTAL PLATES	LENGTH " (mm)
		MINIMUM +20%/-100%	MAXIMUM ±20%	MAX./MIN.	MIN./MAX.		
1B7-0103-005	T3-5	1.3	5.4	1.56	4.86	6	.359(9.12)
1B7-0106-005	T6-5	1.7	11.0	2.04	9.90	12	.470(11.94)
1B7-0109-005	T9-5	1.9	15.7	2.28	14.13	18	.581(14.76)

Horizontal PC Mount

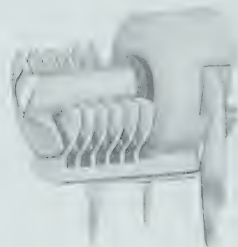
SPECIFICATIONS

Torque: 1.5-8.0 oz. in. (108-576 gm.cm.)
 Working Voltage: 125 VDC †
 Insulation Resistance: 10⁵ megohm
 Q Factor: 2000 at 1 MHz
 Operating Temperature: -55°C to +125°C
 Temperature Coefficient: +45 ± 45 ppm/°C
 Nominal Air Gap: .008" (0.20mm)



FEATURES:

- Low loss ceramic base for stability
- Mounting same as many 10mm ceramic capacitors
- Stator attachment with high temperature solder (232°C)
- Silver plated machined plates



PART NUMBER	MARKING	NOMINAL CAPACITY (pF)		GUARANTEED CAPACITY (pF)		TOTAL PLATES	LENGTH " (mm)
		MINIMUM +20%/-100%	MAXIMUM ±20%	MAX./MIN.	MIN./MAX.		
1B7-0303-105	T33105	1.3	5.4	1.56	4.86	6	.359(9.12)
1B7-0306-105	T36105	1.7	11.0	2.04	9.90	12	.470(11.94)
1B7-0309-105	T39105	1.9	15.7	2.28	14.13	18	.581(14.76)

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AIR VARIABLE CAPACITOR

SUB-MINIATURE TYPE T

Vertical PC Surface Mount

inches (millimeters)

SPECIFICATIONS

Torque: 1.5-8.0 oz. in. (108-576 gm.cm.)

Working Voltage: 125 VDC †

Insulation Resistance: 10⁵ megohm

Q Factor: 2000 at 1 MHz

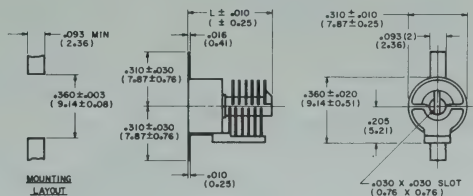
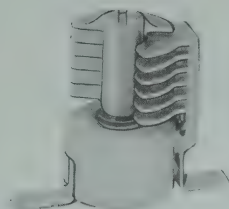
Operating Temperature: -55°C to +125°C

Temperature Coefficient: +45 ± 45 ppm/°C

Nominal Air Gap: .008" (0.20mm)

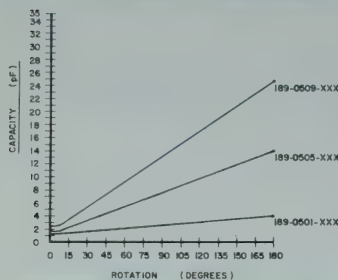
FEATURES:

- Low loss ceramic base for stability
- Mounting same as many 10mm ceramic capacitors
- Stator attachment with high temperature solder (232°C)
- Silver plated machined plates

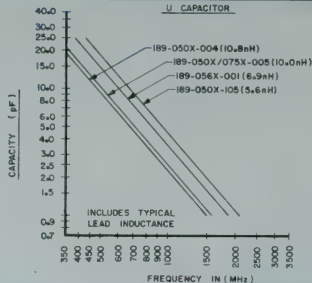


PART NUMBER	MARKING	NOMINAL CAPACITY (pF)		GUARANTEED CAPACITY (pF)		TOTAL PLATES	LENGTH " (mm)
		MINIMUM + 20% / - 100%	MAXIMUM ± 20%	MAX./MIN.	MIN./MAX.		
187-0103-175	T3175	1.3	5.4	1.56	4.86	6	.359(9.12)
187-0106-175	T6175	1.7	11.0	2.04	9.90	12	.470(11.94)
187-0109-175	T9175	1.9	15.7	2.28	14.13	18	.581(14.76)

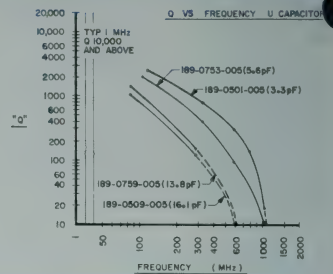
CAPACITY vs. ROTATION U CAPACITOR



CAPACITY VS. SERIES SELF RESONANT FREQUENCY U CAPACITOR



inches (millimeters)



Vertical PC Mount

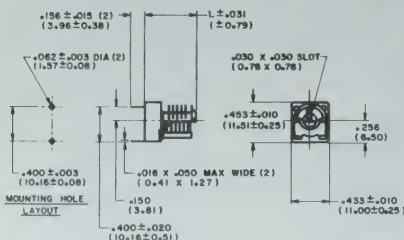
SPECIFICATIONS

Torque: 2.5-10.0 oz. in. (180-720 gm.cm.)
 Working Voltage: See chart †
 Insulation Resistance: 10⁵ megohm
 Q Factor: 2000 at 1 MHz
 Operating Temperature: -55°C to +125°C
 Temperature Coefficient: +45 ± 15 ppm/°C
 Nominal Air Gap: .010" (0.25mm)



FEATURES:

- Low loss ceramic base for stability
- Silver plated machined plates

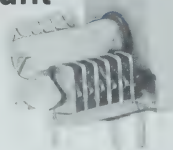


PART NO.	MARKING	NOMINAL CAPACITY(pF)		GUARANTEED CAPACITY(pF)		TOTAL PLATES	LENGTH " (mm)	WORKING VOLTAGE†
		MINIMUM +10% +.2pF /- 100%	MAX. ± 10%	MAX./MIN.	MIN./MAX.			
189-0501-005	189-501-5	1.2	4.2	1.52	3.78	4	.422(10.72)	325VDC
189-0502-005	189-502-5	1.3	6.7	1.63	6.03	6	.469(11.91)	325VDC
189-0503-005	189-503-5	1.4	9.2	1.74	8.28	8	.516(13.11)	325VDC
189-0504-005	189-504-5	1.5	11.6	1.85	10.44	10	.563(14.30)	325VDC
189-0505-005	189-505-5	1.7	14.1	2.07	12.69	12	.609(15.47)	325VDC
189-0506-005	189-506-5	1.8	16.7	2.18	15.03	14	.673(17.09)	325VDC
189-0507-005	189-507-5	2.0	19.3	2.40	17.37	16	.719(18.26)	250VDC
189-0508-005	189-508-5	2.2	21.9	2.62	19.71	18	.766(19.46)	250VDC
189-0509-005	189-509-5	2.4	24.5	2.84	22.05	20	.813(20.65)	250VDC

Horizontal PC Mount

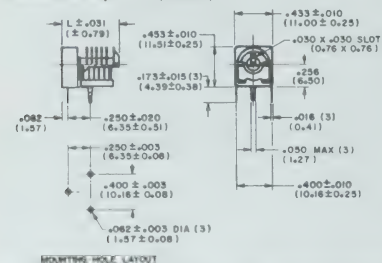
SPECIFICATIONS

Torque: 2.5-10.0 oz. in. (180-720 gm.cm.)
 Working Voltage: See chart †
 Insulation Resistance: 10⁵ megohm
 Q Factor: 2000 at 1 MHz
 Operating Temperature: -55°C to +125°C
 Temperature Coefficient: +45 ± 15 ppm/°C
 Nominal Air Gap: .010" (0.25mm)



FEATURES:

- Low loss ceramic base for stability
- Silver plated machined plates



PART NO.	MARKING	NOMINAL CAPACITY(pF)		GUARANTEED CAPACITY(pF)		TOTAL PLATES	LENGTH " (mm)	WORKING VOLTAGE†
		MINIMUM +10% +.2pF /- 100%	MAX. ± 10%	MAX./MIN.	MIN./MAX.			
189-0503-105	189-503-105	1.4	9.2	1.94	8.28	8	.484(12.29)	325VDC
189-0504-105	189-504-105	1.5	11.6	2.05	10.44	10	.531(13.49)	325VDC
189-0505-105	189-505-105	1.7	14.1	2.27	12.69	12	.578(14.68)	325VDC
189-0506-105	189-506-105	1.8	16.7	2.38	15.03	14	.641(16.28)	325VDC
189-0507-105	189-507-105	2.0	19.3	2.60	17.37	16	.688(17.48)	250VDC
189-0508-105	189-508-105	2.2	21.9	2.82	19.71	18	.734(18.64)	250VDC
189-0509-105	189-509-105	2.4	24.5	3.04	22.05	20	.781(19.84)	250VDC



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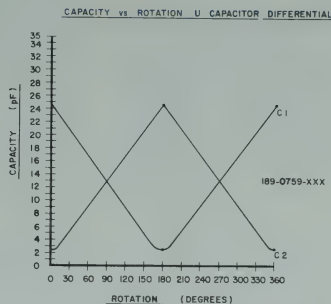
APPLICATION • Communications equipment • Test instruments • Remote control circuits

Differential-PC Mount

inches (millimeters)

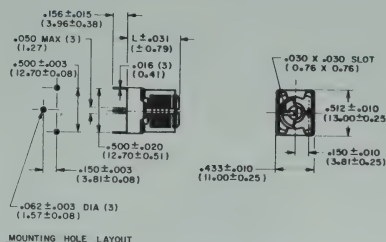
SPECIFICATIONS

Torque: 2.5-10.0 oz. in. (180-720 gm.cm.)
 Working Voltage: See chart †
 Insulation Resistance: 10^5 megohm
 Q Factor: 2000 at 1 MHz
 Operating Temperature: -55°C to $+125^{\circ}\text{C}$
 Temperature Coefficient: $+45 \pm 15$ ppm/ $^{\circ}\text{C}$
 Nominal Air Gap: .010" (0.25mm)



FEATURES:

- Low loss ceramic base for stability
- Silver plated machined plates



PART NO.	MARKING	NOMINAL CAPACITY(pF)		GUARANTEED CAPACITY(pF)		TOTAL PLATES	LENGTH" (mm)	WORKING VOLTAGE†
		MINIMUM +10% +.2pF /-100%	MAX. ±10%	MAX./MIN.	MIN./MAX.			
189-0753-005	189-753-5	1.4	9.2	1.94	8.28	12	.516(13.11)	325VDC
189-0755-005	189-755-5	1.7	14.1	2.27	12.69	18	.609(15.47)	325VDC
189-0757-005	189-757-5	2.0	19.3	2.60	17.37	24	.719(18.26)	250VDC
189-0759-005	189-759-5	2.4	24.5	3.04	22.05	30	.813(20.65)	250VDC

AIR VARIABLE CAPACITORS

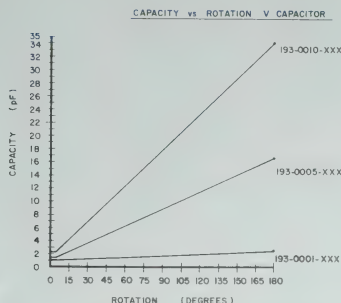
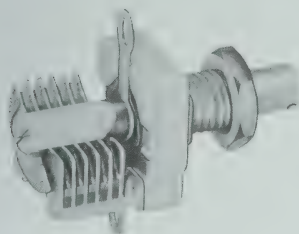
MINIATURE TYPE V

APPLICATION • Communications equipment • Test instruments • Remote control circuits

Panel Mount

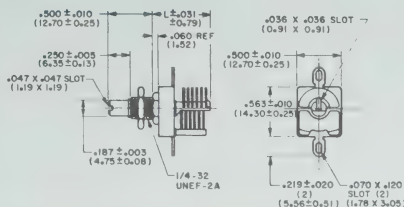
SPECIFICATIONS

Torque: 2.5-10.0 oz. in. (108-720 gm.cm.)
 Working Voltage: See chart †
 Insulation Resistance: 10^5 megohm
 Q Factor: 2000 at 1 MHz
 Operating Temperature: -55°C to $+125^{\circ}\text{C}$
 Temperature Coefficient: $+50 \pm 20$ ppm/ $^{\circ}\text{C}$
 Nominal Air Gap: .010" (0.25mm)



FEATURES:

- Low loss ceramic base for stability
- Silver plated machined plates



PART NO.	MARKING	NOMINAL CAPACITY(pF)		GUARANTEED CAPACITY(pF)		TOTAL PLATES	LENGTH" (mm)	WORKING VOLTAGE†
		MINIMUM +10% +.2pF /-100%	MAX. ±10%	MAX./MIN.	MIN./MAX.			
193-0004-001	193-4-1	1.4	13.0	1.74	11.70	8	.556(14.12)	325VDC
193-0006-001	193-6-1	1.7	20.0	2.07	18.00	12	.658(16.71)	325VDC
193-0008-001	193-8-1	2.0	27.0	2.40	24.30	16	.760(19.30)	250VDC
193-0010-001	193-10-1	2.2	34.0	2.62	30.60	20	.862(21.89)	250VDC

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AIR VARIABLE CAPACITOR MINIATURE TYPE V

Vertical PC Mount

inches (millimeters)

SPECIFICATIONS

Torque: 2.5-10.0 oz. in. (180-720 gm.cm.)

Working Voltage: See Chart 1

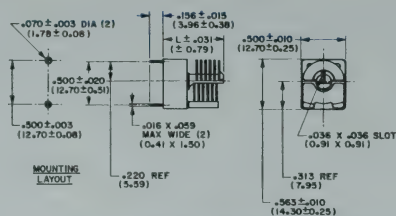
Insulation Resistance: 10^5 megohm

Q Factor: 2000 at 1 MHz

Operating Temperature: -55°C to $+125^\circ\text{C}$

Temperature Coefficient: $+50 \pm 20$ ppm/ $^\circ\text{C}$

Nominal Air Gap: .010" (0.25mm)



FEATURES:

- Low loss ceramic base for stability
- Silver plated machined plates



PART NO.	MARKING	NOMINAL CAPACITY (pF)		GUARANTEED CAPACITY (pF)		TOTAL PLATES	LENGTH" (mm)	WORKING VOLTAGE†
		MINIMUM + 10% $\pm$.2pF /- 100%	MAX. $\pm$ 10%	MAX./MIN.	MIN./MAX.			
193-0004-005	193-4-5	1.4	13.0	1.74	11.70	8	.581(14.76)	325VDC
193-0006-005	193-6-5	1.7	20.0	2.07	18.00	12	.683(17.35)	325VDC
193-0008-005	193-8-5	2.0	27.0	2.40	24.30	16	.785(19.94)	250VDC
193-0010-005	193-10-5	2.2	34.0	2.62	30.60	20	.887(22.53)	250VDC

CAPACITOR KITS

Capacitor Design and Prototyping Kit

AIR AND TUBULAR VARIABLE CAPACITORS



Kit contains an assortment of 252 capacitors in horizontal, vertical, PC and panel mounting styles. In capacity ranges from .25 pF to 34 pF .30 Tubular variables, 30 Micro "T" variables, 60 Type "T" variables, 114 Type "U" and 18 Type "V" variables.

PART NO.
189-0099-001

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Johnson sockets are designed to provide secure retention of the tube and positive, low-resistance contact between tube pins and socket contacts. Johnson, one of the few companies still making tube sockets, makes them to serve the needs of customers who still use tubes for lack of a reliable high power RF semiconductor.

ORDERING INFORMATION

For a numerical index of the complete Johnson component product line, refer to the end of this catalog, starting on page 113.

Each product listing in this section includes detailed drawings and part number information. Material, mechanical and electrical specifications are listed for each item.

TO ORDER

When you have determined the part number for the tube socket you require, contact one of our E.F. Johnson distributors for the socket you need. If you don't know the name of your local distributor or if you have special requirements, contact the factory at 1-800-247-8256 or write Component Marketing Manager, P.O. Box 59089, Minneapolis, MN 55459-0089.

Air Cooled Type	106, 107
Bayonet Type	108, 109
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POWER TYPE

inches (millimeters)

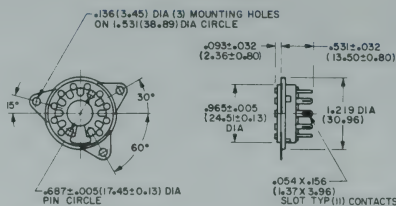
Power Tube Socket

SPECIFICATIONS

Housing: Brass per QQ-B-626D, .0001" nickel plated

Insulator: Glass base silicone

Contacts: Beryllium copper (heat treated) per QQ-C-533 .0001" silver plated



FEATURES:

- Raised pads for excellent base pin cooling
- For tubes such as RCA 8072, 8121, and 8122

DESCRIPTION:

For ultra high frequency tubes. Also suitable for use with CRT bues 1EP1, and 1EP11 with E.I.A. base no. E11-22. Base material has low dielectric constant which results in low pin-to-pin and shunt capacity. Continuous heat resistance to 500°F. Mounting lugs provide low inductance grounding. Three point mounting stability. Eleven pin configuration.

PART NO.

124-0311-100 (Industrial Grade)

AIR COOLED TYPE

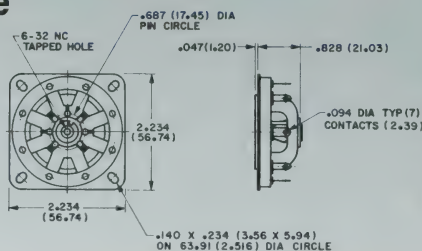
With Mounting Saddle

SPECIFICATIONS

Housing: Brass per QQ-B-626D, .0001" silver plated

Insulator: KEL-F

Contacts: Beryllium copper per QQ-C-533, .0001" silver plated



FEATURES

- Cathode terminals insulated
- Positive, low resistance contact between tube pins and socket contacts

DESCRIPTION:

Mounts below chassis in 1.656" (42.05mm) diameter hole with four elongated .140" (3.56mm) x .234" (5.94mm) holes. Accommodates mounting circle diameters from 2.432" (61.77mm) to 2.618" (66.50mm).

PART NO.

124-0107-001

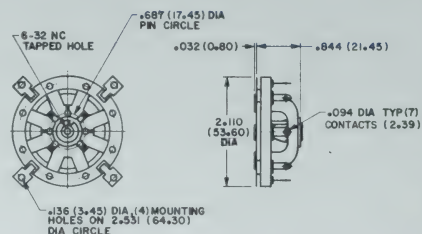
Less Mounting Saddle

SPECIFICATIONS

Housing: Brass per QQ-B-626D, .0001" silver plated

Insulator: KEL-F

Contacts: Beryllium copper per QQ-C-533, .0001" silver plated



FEATURES:

- Similar to 124-0107-001, but less mounting saddle; cathode terminals are grounded
- Positive, low resistance contact between tube pins and socket contacts

DESCRIPTION:

Mounts below chassis in 1.656" (42.05mm) diameter hole with four .136" (3.45mm) diameter holes on circle of 2.531" (64.03mm). Low inductance grounding of cathode terminals No. 2, 4, 6, and 8 by integral combination grounding and mounting lugs.

PART NO.

124-0114-001

With Mounting Ring

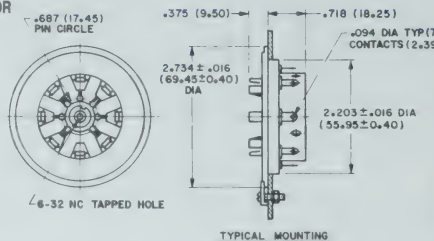
INCLUDES 2700 pF SCREEN GRID BY-PASS CAPACITOR

SPECIFICATIONS

Housing: Brass per QQ-B-626D, .0001" silver plated

Insulator: KEL-F

Contacts: Beryllium copper per QQ-C-533, .0001" silver plated



FEATURES

- Cathode terminals insulated or grounded
- Positive, low resistance contact between tube pins and socket contacts

DESCRIPTION:

Mounts above chassis through 2.250" (51.155mm) diameter hole with three clips drilled for 6-32 screws. Has provision for mounting socket skirt directly to a 1.625" (41.28mm) O.D. outer conductor of a coaxial type line.

PART NO.

124-0110-001 (Cathode terminals insulated)

124-0112-001 (Cathode terminals grounded)

AIR COOLED TYPE

inches (millimeters)

With Mounting Ring

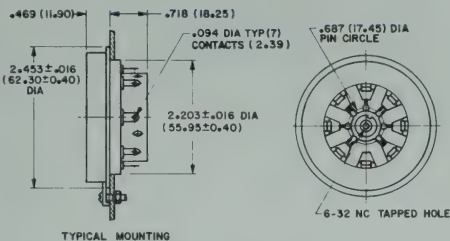
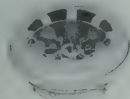
INCLUDES 1100 pF SCREEN GRID BY-PASS CAPACITOR

SPECIFICATIONS

Housing: Brass per QQ-B-626D, .0001" silver plated

Insulator: KEL-F

Contacts: Beryllium copper per QQ-C-533, .0001" silver plated



FEATURES

- Cathode terminals insulated
- Withstands 1500 VDC under applicable test specifications
- Recessed, silver plated beryllium copper screen grid contacts

DESCRIPTION:

Mounts above chassis through 2.250" (57.15mm) diameter hole with three clips drilled for 6-32 screws. Provision for mounting socket skirt directly to 1.625" (41.28mm) outer conductor of a coaxial type line.

PART NO.
124-0115-001

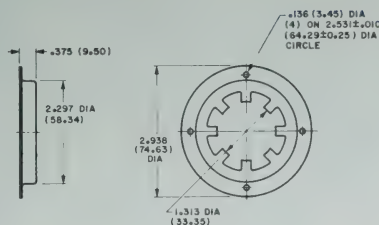
Screen Grid By-Pass Capacitor

1450 pF SCREEN GRID BY-PASS CAPACITOR

SPECIFICATIONS

Housing: Brass per QQ-B-626D, .0001" silver plated

Contacts: Beryllium copper per QQ-C-533, .0001" silver plated



FEATURES:

- Capacitor dielectric strength tested at 1000 VDC
- Low inductance, silver-plated contact fingers provide positive contact pressure.

DESCRIPTION:

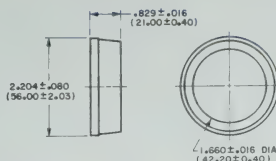
Circular silvered-mica screen grid by-pass capacitor mounted in a low-loss, silicone sealed silver plated drawn brass housing. For use with these and similar sockets: 124-0107-001, 124-0114-001, 124-0311-100.

PART NO.
124-0113-001

Steatite Chimney

SPECIFICATIONS

Material: L-432 Steatite, DC-200 treated



FEATURES

- High quality heat resistant steatite

DESCRIPTION:

Tapered construction directs air flow through tube cooling fins. For use with these and similar sockets: 124-0107-001, 124-0110-001, 124-0112-001, 124-0114-001.

PART NO.
124-0111-001

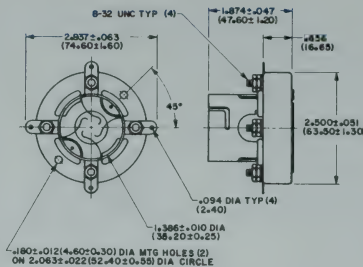
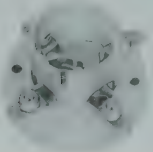
BAYONET TYPE

inches (millimeters)

Medium 4-Pin

SPECIFICATIONS

Base: Porcelain, glazed top and sides
Shell: Aluminium per QQ-A-200/8, iridized
Contacts: Phosphor bronze per QQ-B-750, .0001"
 nickel plated



FEATURES:

- Phosphor bronze side wiping contacts and extended creepage paths
- Securely holds tube
- Solder or threaded stud terminals
- Nuts furnished.

DESCRIPTION:

Compact economical socket for tubes with E.I.A. base no. A4-10. Heavy, side wiping contacts. Mounts above chassis through 2.063" (52.40mm) diameter circle.

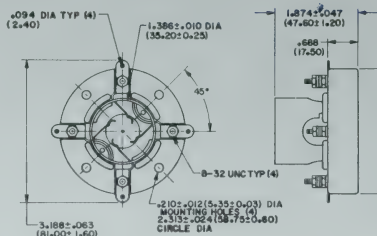
PART NO.

123-0210-001 (Commercial Grade)

Heavy Duty Medium 4-Pin

SPECIFICATIONS

Base: Porcelain, glazed top and sides
Shell: Aluminium per QQ-A-200/8, iridized
Contacts: Phosphor bronze per QQ-B-750, .0001"
 nickel plated (Commercial Grade)



FEATURES:

- Securely holds tube
- Extra heavy duty side wiping contacts
- Extended creepage paths to resist high voltage breakdown
- Solder or threaded stud terminals
- Nuts furnished.

DESCRIPTION:

For use with tubes such as the 811A or 866A with E.I.A. base no. A4-10. Mounts above chassis through 2.313" (58.75mm) diameter circle.

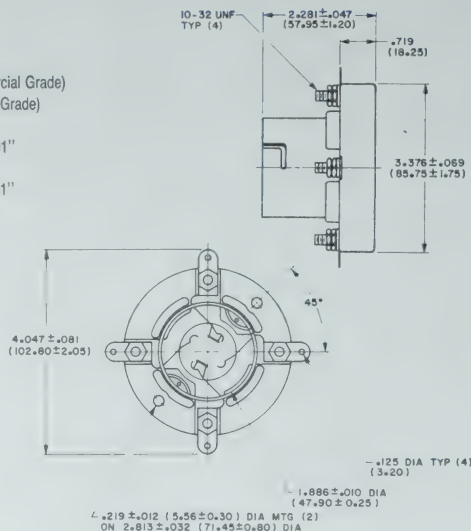
PART NO.

123-0209-001 (Commercial Grade)

Jumbo 4-Pin

SPECIFICATIONS

Base: Porcelain, glazed top and sides (Commercial Grade)
 L-432 steatite, DC-200 treated (Industrial Grade)
Shell: Aluminium per QQ-A-200/8, iridized
Contacts: Phosphor bronze per QQ-B-750, .0001"
 nickel plated (Commercial Grade)
 Beryllium copper per QQ-C-533, .0001"
 silver plated (Industrial Grade)



FEATURES:

- Securely holds tube
- Double wiping filament contacts handle heavy current
- Solder or threaded stud terminals
- Nuts furnished.

DESCRIPTION:

Popular "50 Watt" socket for tubes such as the 211, 872A, and others with E.I.A. base no. A4-29. Mounts above chassis through 2.813" (71.45mm) diameter circle.

PART NO.

123-0211-001 (Commercial Grade)

123-0211-100 (Industrial Grade)

BAYONET TYPE

Super Jumbo 4-Pin

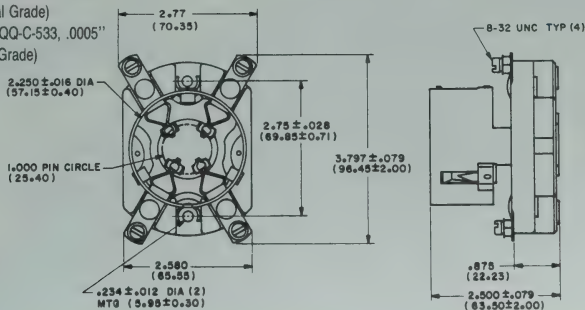
SPECIFICATIONS

Base: L-423 steatite, DC-200 treated

Shell: Brass per QQ-B-626D, .0001" nickel plated (Industrial Grade)

Brass per QQ-B-626D, .0003" nickel plated (Military Grade)

Contacts: Beryllium copper per QQ-C-533, .0001" silver plated (Industrial Grade)
Beryllium copper per QQ-C-533, .0005" silver plated (Military Grade)



FEATURES:

- Three heavy retaining springs in nickel plated brass shell holds tube securely
- Special high current insertion type spring contacts
- Screw terminals: 8-32 UNC screws furnished

DESCRIPTION:

Heavy duty socket for high voltages and/or current. Accommodates 8008, 5C22, C6J, FG104, GL146, and other tubes with E.I.A. base no. A4-18. Two mounting holes recessed to prevent flashover. Mounts with two .234" (5.95mm) diameter holes on 2.75" (69.85mm) diameter circle.

PART NO.

123-0206-100 (Industrial Grade)

123-0206-200 (Military Grade)

SEPTAR TYPE

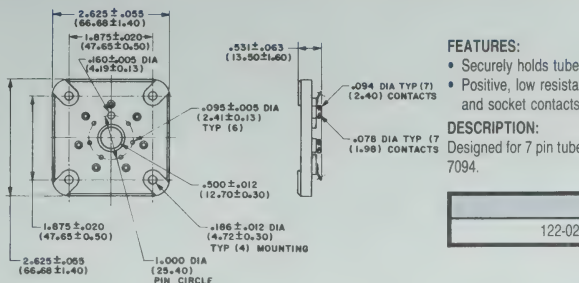
7-Pin Configuration

SPECIFICATIONS

Base: L-423 steatite, DC-200 treated

Shell: Aluminium per QQ-A-200/8, iridized

Contacts: Phosphor bronze per QQ-B-750, with beryllium copper springs per QQ-C-533, .0005" silver plated



FEATURES:

- Securely holds tube
- Positive, low resistance contact between tube pins and socket contacts

DESCRIPTION:

Designed for 7 pin tubes with E.I.A. base no. E7-2 such as the 7094.

PART NO.

122-0247-202 (Military Grade)

VHF SEPTAR TYPE

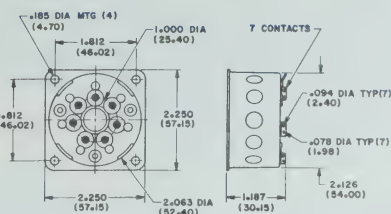
7-Pin Configuration

SPECIFICATIONS

Base: L-423 steatite, DC-200 treated

Shell: Aluminium per QQ-A-200/8, iridized

Contacts: Phosphor bronze per QQ-B-750, with beryllium copper springs per QQ-C-533, .0001" silver plated



FEATURES:

- Submounting aluminum shell
- Molded contact recesses in base prevents turning
- 3/8" holes provide adequate ventilation

DESCRIPTION:

Takes 1/3 less space than other types. Permits compact design using tubes with medium septar bases such as the 5894, 6252, and 6524 with E.I.A. base no. E7-20.

PART NO.

122-0105-100 (Industrial Grade)

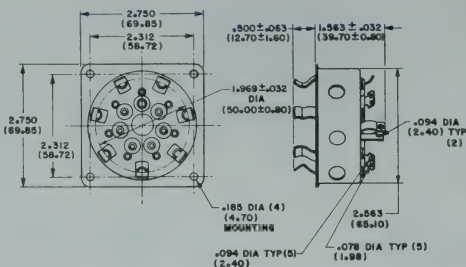


inches (millimeters)

SPECIFICATIONS

Shell: Aluminum per QQ-A-200/8, iridited

Contacts: Phosphor bronze per QQ-B-750, with beryllium copper springs per QQ-C-533, .0005" silver plated.



FEATURES:

- Locating grooves facilitate tube insertion
- Submounting aluminum shell
- Compact design handles heavy current

DESCRIPTION:

Permits compact design using tubes with medium septar bases. For tubes such as the 826, 832, 4D32, PL-177A, PL-6549, Y-65 with E.I.A. base no. E7-2. Seven retainer springs, with ventilated shield.

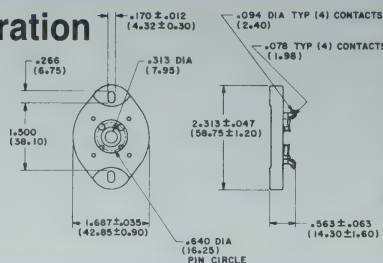
PART NO.
122-0101-200 (Military Grade)

WAFER TYPE

SPECIFICATIONS

Base: L-423 steatite, DC-200 treated

Contacts: Brass per QQ-B-626D with steel spring
per QQ-S-777. .0001" nickel plated.



FEATURES:

- Locating grooves facilitate tube insertion
- Sub-panel mounting possible with countersunk rivets and bossed mounting holes
- Long, parallel contacts for high currents

DESCRIPTION:

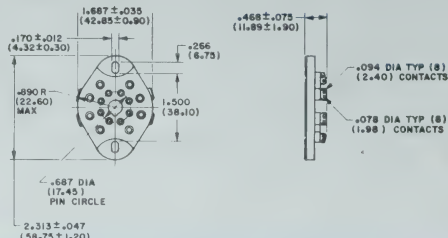
High quality commercial grade socket for high current use.

PART NO.
122-0224-001 (Commercial Grade)

SPECIFICATIONS

Base: L-423 steatite, DC-200 treated

Contacts: Brass per QQ-B-626D with steel springs
per QQ-S-777, .0001" nickel plated.



FEATURES:

- Locating grooves facilitate tube insertion
- Sub-panel mounting possible with countersunk rivets and bossed mounting holes

DESCRIPTION:

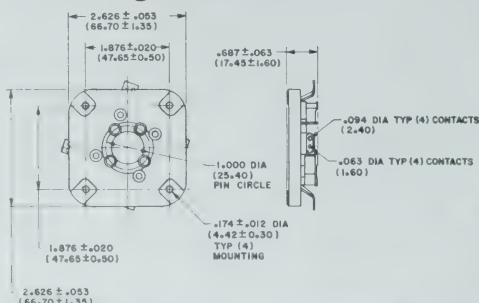
High quality commercial grade socket for high current use. Standard eight pin configuration.

PART NO.
122-0228-001 (Commerical Grade)

SPECIFICATIONS

Base: L-423 steatite, DC-200 treated

Contacts: Brass per QQ-B-626D with steel springs
per QQ-S-777, .0001" nickel plated.



FEATURES:

- High current capacity
- Sub-panel mounting possible with countersunk rivets and bossed mounting holes

DESCRIPTION:

Heavy duty steatite insulated wafer type socket. For rectifier and thyatron type tubes with E.I.A. base nos. A4-15, A4-16, and A4-18. Standard four pin configuration.

PART NO.
122-0244-001 (Commercial Grade)

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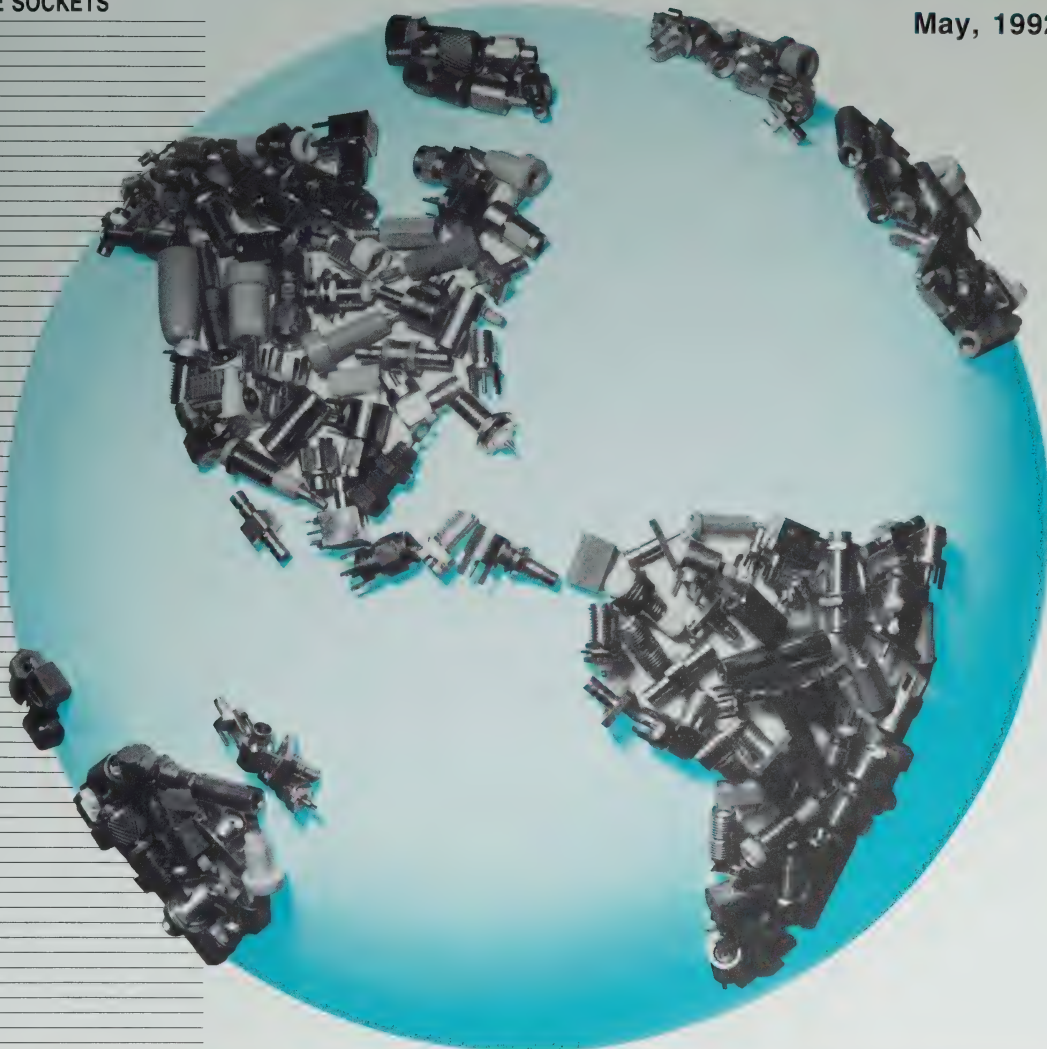
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March 23, 1993

Mr. Phil Accardi
Engineer
U T Photonics
UTC 6200, 1289 Blue Hills Avenue
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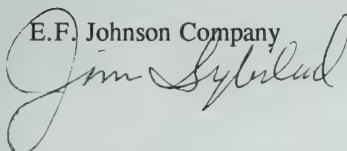
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	PEI/Genesis	(215) 673-0400

RHODE ISLAND

PAWTUCKET	Major Edwards Elec.	(401) 725-7400
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SOUTH CAROLINA

COLUMBIA	Dixie Electronics Inc.	(803) 779-5332
GREENVILLE	EMSCO	(803) 233-4121

TENNESSEE

MEMPHIS	Carlton Bates	(901) 365-3539
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TEXAS

ARLINGTON	Bisco Industries, Inc.	(817) 640-7046
AUSTIN	Harrison Equipment	(512) 258-1320
	Force Electronics	(512) 476-2104
	Wofford Electronics	(512) 339-1131
DALLAS	Arrow Elect. Fasteners	(214) 380-6464
	Harrison Equipment	(214) 988-7150
	Wofford Electronics	(214) 320-0294
	Ideal Industrial Elec.	(915) 779-6647
EL PASO	Force Electronics	(214) 247-9955
FARMERS BRANCH	Geophysical Supply Co.	(713) 666-4100
HOUSTON	Powell Electronics	(214) 550-0547
IRVING	Mouser Electronics	(817) 483-4422
MANSFIELD	Swico Electronics	(817) 577-0092
N. RICHLAND HILLS	RSC Electronics	(214) 644-3444
RICHARDSON	Harrison Equipment	(713) 879-2600
STAFFORD	Wofford Electronics	(713) 351-2255
TOMBALL		

UTAH

SALT LAKE CITY	Bisco Industries, Inc.	(801) 972-3525
	Kimball Electronics	(801) 328-2075
	Standard Supply	(801) 486-3371

VIRGINIA

CHARLOTTESVILLE	Virginia Elecs. Co., Inc.	(804) 296-4184
ROANOKE	Peoples Elec. Supply, Inc.	(703) 342-8933

WASHINGTON

BELLEVUE	Almac/Arrow Electronics	(206) 643-9992
SEATTLE	Powell Electronics	(800) 722-6769
	Radar Electric	(206) 282-2511

WISCONSIN

MILWAUKEE	Marsh Electronics	(414) 475-6000
NEW BERLIN	Classic Components	(414) 786-5300

* National Catalog Operation

CANADIAN JOHNSON DISTRIBUTORS

BRITISH COLUMBIA

PRINCE GEORGE	Mecca Electronics Ltd	(604) 562-4141
VANCOUVER	B&E Industrial Elecs.	(604) 522-1658
	Electro Sonic	(604) 273-2911
	Intek Electronics	(604) 294-8100
VICTORIA	Pacific Coast Elecs.	(604) 385-5111
	Queale Electronics	(604) 388-6111

ALBERTA

CALGARY	B&E Industrial Elecs.	(403) 243-7211
	Cardinal Industrial Elecs.	(403) 259-6817
	Electro Sonic	(403) 255-9550
EDMONTON	Cardinal Industrial Elecs.	(403) 483-6266

SASKATCHEWAN

REGINA	B&E Industrial Elecs.	(306) 522-7866
SASKATOON	Cardinal Electronics	(306) 934-3443

MANITOBA

WINNIPEG	Electro Sonic	(204) 783-3105
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ONTARIO

KITCHENER	Waterloo Electronics	(519) 745-9421
	Westburne Industrial	(519) 742-1711

LONDON	SVI	(519) 649-1414
NORTH BAY	Weesco-North Bay	(705) 476-1444
OTTAWA	Electro Sonic	(613) 728-8333
	Electronic Wholesalers	(613) 746-4413
	Wackid Radio	(613) 728-1821
	Westburne Electronics	(613) 737-5570
PETERBOROUGH	Weesco-Peterborough	(705) 745-2493
SAULT STE MARIE	Sonic Northern	(705) 945-8196
SUDBURY	ICS Electronics	(807) 622-0671
	Sonic Northern	(705) 674-5691
	Weesco-Sudbury	(705) 560-4814
TORONTO	Electro Sonic Inc.	(416) 494-1666
	Rush Electronics	(416) 677-7280
	SVI	(416) 445-0723
	Westburne Electronics	(416) 635-2980

QUEBEC

MONTREAL	Cite Electronique	(514) 525-2551
	Electronic Wholesalers	(514) 769-8861
	Ferrotechnics	(514) 341-3450
QUEBEC	Crobel Ltee	(418) 689-1171
	Pro Technique	(418) 529-5774
SEPT-ILES	Dist. Industrielle Cote Nord	(418) 962-1543
TROIS RIVIERES	Matteau Electronique	(819) 375-4779

NOVA SCOTIA

DARTMOUTH	RAE Industrial Elecs.	(902) 465-2350
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WORLDWIDE JOHNSON DISTRIBUTORS

DENMARK

COPENHAGEN	E.V. Johanssen	45 3 1 839022
	Elektronik A.S.	

FINLAND

ESPOO	OY Flinkenberg	358 0 859911
	& Co. AB	

HONG KONG

KOWLOON	Qualtek Electronics Ltd.	852 3 7801339
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SWEDEN

FARSTA	Gunnar Petterson	46 8 930280
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UNITED KINGDOM

EASTLEIGH, HANTS	Verospeed	44 703 641111
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E.F. JOHNSON COMPANY
299 JOHNSON AVENUE
WASECA, MINNESOTA 56093-0514

PHONE: 1-800-247-8256, ext. 6281
 507-835-6220

FAX: 1-800-247-8256, ext. 6287
 507-835-6287

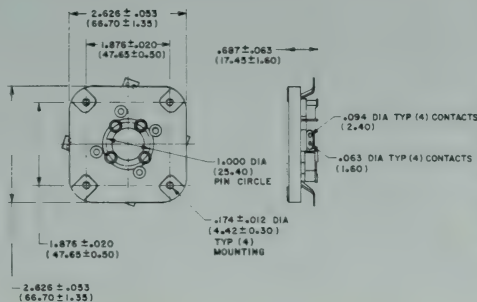
Super Jumbo: 4-Pin Configuration

inches (millimeters)

SPECIFICATIONS

Base: L-423 steatite, DC-200 treated

Contacts: Phosphor bronze per QQ-B-750, with beryllium copper springs per QQ-C-533, .0005" silver plated.



FEATURES:

- High current capacity
- Positive, low resistance contact between tube pins and socket contacts
- Sub-panel mounting possible with countersunk rivets and bossed mounting holes

DESCRIPTION:

Heavy duty steatite insulated wafer type socket. For 8008 type tube and many rectifier and thyratron types with E.I.A. base nos. A4-15, A4-16, and A4-18. Four pin configuration.

PART NO.

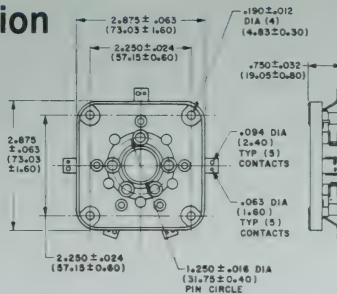
122-0244-200 (Military Grade)

Giant: 5-Pin Configuration

SPECIFICATIONS

Base: L-423 steatite, DC-200 treated

Contacts: Brass per QQ-B-626D with steel springs per QQ-S-777, .0001" nickel plated.



FEATURES:

- Ventilating holes to provide tube seal cooling
- Sub-panel mounting possible with countersunk rivets and bossed mounting holes

DESCRIPTION:

Heavy duty steatite insulated wafer type socket. For tubes such as 4-125A, 4-250A, and RK-48 with E.I.A. base no. A5-19. Standard five pin configuration.

PART NO.

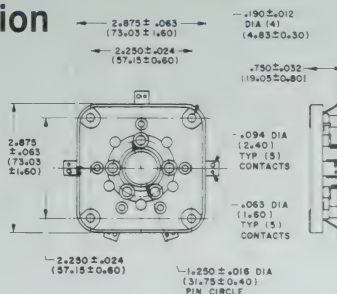
122-0275-001 (Commercial Grade)

Giant: 5-Pin Configuration

SPECIFICATIONS

Base: L-423 steatite, DC-200 treated

Contacts: Phosphor bronze per QQ-B-750 with beryllium copper springs per QQ-C-533, .0001" silver plated.



FEATURES:

- Ventilating hole to provide tube seal cooling
- Sub-panel mounting possible with countersunk rivets and bossed mounting holes

DESCRIPTION:

Heavy duty steatite insulated wafer type socket. For tubes such as 4-125A, 4-250A, and RK-48 with E.I.A. base no. A5-19. Standard five pin configuration.

PART NO.

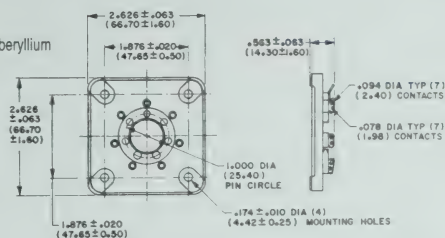
122-0275-100 (Industrial Grade)

Giant: 7-Pin Configuration

SPECIFICATIONS

Base: L-423 steatite, DC-200 treated

Contacts: Phosphor bronze per QQ-B-750 with beryllium copper springs per QQ-C-533, .0005" silver plated.



FEATURES:

- Securely holds tube
- Positive, low resistance contact between tube pins and socket contacts

DESCRIPTION:

Heavy duty steatite insulated wafer type socket. For tubes such as 4E27, HK257, and 813 with E.I.A. base no. A7-17. Seven pin configuration. Ventilating hole to provide tube seal cooling.

PART NO.

122-0237-200 (Military Grade)

TUBE	BASE	EFJ PART NO.
C3J	A4-10	123-0209-001 123-0210-001
FG104	A-18	123-0211-011 123-0211-100 123-0206-100
GL146	A-18	123-0206-200 123-0211-001 123-0211-100 123-0206-100 123-0206-200
GL15545	A-18	123-0211-001 123-0211-100 123-0206-100 123-0206-200
PL-177A	E7-2	122-0101-200
PL6549	E7-2	122-0101-200
Y-65	E7-2	122-0101-200
1EP1	EIA-22	124-0311-100
1EP11	EIA-22	124-0311-100
1W300B	JEDEC-B8-236	124-0112-001
2-25A	A4-5	122-0224-001
3B28	A4-10	123-0209-001 123-0210-001 122-0224-001
3C24	A4-5	122-0224-001
4B32	A4-5	122-0224-001
4CB5	A-18	123-0206-100 123-0206-200 123-0211-001 123-0211-100 124-0114-001 124-0114-001 124-0112-001 124-0115-001
4CB350F	JEDEC-B8-236	124-0114-001
4CX250B	JEDEC-B8-236	124-0114-001 124-0112-001 124-0115-001
4CX250F	JEDEC-B8-236	124-0112-001 124-0114-001
4CX250R	JEDEC-B8-236	124-0115-001

TUBE	BASE	EFJ PART NO.
4CX350A	JEDEC-B8-236	124-0112-001 124-0114-001
4C350F	JEDEC-B8-236	124-0112-001
4D32	E7-2	122-0101-200
4PR65A	E7-2	122-0101-200
4W300B	JEDEC-B8-236	124-0107-001
4X25B	JEDEC-B8-236	124-0112-001
4W150B	JEDEC-B8-236	124-0107-001
4W150A	JEDEC-B8-236	124-0107-001
4W150D	JEDEC-B8-236	124-0107-001
4W150R	JEDEC-B8-236	124-0107-001
4W150S	JEDEC-B8-236	124-0115-001
4W250B	JEDEC-B8-236	124-0114-001
4W250F	JEDEC-B8-236	124-0112-001 124-0114-001
4X250F	JEDEC-B8-236	124-0115-001
4-65A	E7-2	122-0101-200 122-0247-202
5C22	A-18	123-0206-100 123-0206-200 123-0211-001 123-0211-100 122-0228-001
6L6	B5-45	122-0228-001
25T	A4-5	122-0224-001
35T	A4-5	122-0224-001
75TH	A4-9	122-0224-001
75TL	A4-9	122-0224-001
100TH	A4-10	122-0224-001
100TL	A4-10	122-0224-001
673	A-18	123-0206-100 123-0206-200 123-0211-001 123-0211-100 123-0209-001 123-0210-001 122-0224-001
811A	A4-10	123-0209-001 123-0210-001
812	A4-9	122-0224-001

TUBE	BASE	EFJ PART NO.
815	B5-45	122-0228-001
816	A4-9	122-0224-001
825	E7-2	122-0247-202
826	E7-2	122-0101-200
832	E7-2	122-0101-200
866A	A4-10	123-0210-001
866G	A4-10	123-0209-001
884	B5-45	122-0228-001
5560	A4-10	123-0210-001
5894	E7-20	122-0105-100
6011	A4-10	123-0209-001 123-0210-001 122-0228-001 122-0105-100 122-0105-100 123-0206-100 123-0206-200 123-0211-001 123-0211-100
6145	B5-45	122-0228-001
6252	E7-20	122-0105-100
6524	E7-20	122-0105-100
6895	A-18	123-0206-100 123-0206-200 123-0211-001 123-0211-100
7094	E7-2	122-0247-202
7580	JEDEC-B8-236	124-0112-001 124-0114-001 124-0115-001
8008	A-18	123-0206-100 123-0206-200 123-0211-001 123-0211-100
8020	A4-9	122-0224-001
8021	EIA-81	124-0311-100
8072	EIA-81	124-0311-100
8121	EIA-81	124-0311-100
8122	EIA-22	124-0311-100
8165	E7-2	122-0101-200
8462	EIA-81	124-0311-100

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105-0213-200	6	105-0863-001	4	105-2202-601	7	108-1299-001	25
105-0251-001	6	105-1001-001	7	105-2203-601	7	108-1300-501	13
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105-0304-001	8	105-1048-001	5	105-4210-105	4	108-1727-101	19
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111-0710-001	22	131-1801-316	45	131-6701-206	45	142-0285-506	30
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111-0722-002	22	131-1801-376	46	131-6701-306	45	142-0286-006	30
111-0723-002	22	131-3302-001	42	131-6701-341	46	142-0286-501	30
111-0724-002	22	131-3302-006	42	131-6701-346	46	142-0286-506	30
111-0727-002	22	131-3302-401	42	131-6701-401	43	142-0287-001	33
111-0730-002	22	131-3302-406	42	131-6701-406	43	142-0287-006	33
111-0741-002	23	131-3303-001	42	131-6701-411	43	142-0293-001	33
111-0742-002	23	131-3303-006	42	131-6701-416	43	142-0293-006	33
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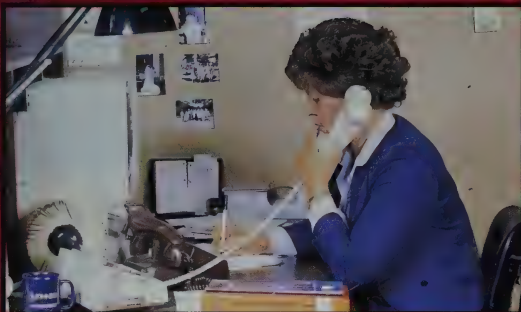


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THE CHOICE



of project engineers



distributors, buyers



and specifiers



JOHNSON®

E.F. JOHNSON – A LEADER

Since 1923, E.F. Johnson has been designing and manufacturing component products and parts to meet the demand of thousands of major OEM manufacturers across the United States and the world.

E.F. Johnson was founded in Waseca, Minnesota, in 1923; focusing on retail mail order sales of component parts to early commercial broadcast stations and amateur "ham" radio operators, then expanding into manufacturing. During World War II, Johnson contributed to the war effort by building transmitter and component parts for military radios. Johnson became the first company to manufacture complete amateur transmitters, the Viking I in 1949, followed by many others. In the Fifties and Sixties, Johnson manufactured low and high band radios for the developing two-way radio market. During the Seventies, Johnson was one of the leading manufacturers of radios for the popular CB market. Then, in the Eighties, Johnson was a leader in the 800 MHz trunked radio market and was instrumental in the development of cellular mobiletelephone and in Airfone.*

Corporate and Sales offices and Technical Development are located in Minneapolis, with manufacturing facilities in Waseca, Minnesota. Johnson employs over 1400 employees.

* Airfone is a registered trademark of GTE, Airfone, Inc.

WHAT CAN JOHNSON DO FOR ME?

Johnson Component Products designs and manufactures quality electronic products. To eliminate the possibility of defective parts, Johnson's Quality Assurance department uses Statistical Process Control (SPC) to insure that the parts you receive are defect free. Johnson has received Quality Award Certificates from major manufacturers certifying the excellent quality – a key factor in a "just-in-time" world.

A courteous sales staff services your account and answers your technical questions. Component Products maintains over 30 representative sales offices worldwide and a network of over 200 distributors to speed delivery. A genuine concern with customers' needs leads Johnson Component Products to develop vertical manufacturing capabilities. Our facility makes it possible to give you, the customer, almost any variation of a standard part or design and manufacture almost any type of "special" electronic circuit component you may require. A complete line of electronic circuit components makes Johnson your source for all your R.F. connectors, circuit interconnect and capacitive circuit trimming needs.

R.F. Subminiature Connectors

JCM-A(SMA), JCM-B(SMB), JCM-C(SMC)
COMMERCIAL TYPES



When you need an SMA, SMB, or SMC type connector, but don't want to pay for MIL-spec, you don't have to sacrifice performance. Johnson JCM subminiature coaxial connectors give you a low-cost, high-grade alternative.

For communications, computers, office equipment, and test and measurement applications up to 4 GHz, specify the snap-on JCM-B or screw-on JCM-C. For frequencies up to 8 GHz, specify the JCM-A.

All can be interchanged and intermated with their MIL-spec counterparts. All give you virtually the same electrical, mechanical and environmental performance. Yet, all can save you up to half the cost of their SMA, SMB, or SMC equivalents.

JCM connectors are available in gold or nickel plated versions with beryllium copper and half-hard brass contacts. JCM-A connectors are available in brass. Many JCM-B's are available in two versions; machined from half-hard brass or die cast in zinc. JCM-C bodies are screw machined half-hard brass.

Stainless steel JCM-A versions will become available throughout 1990. Both QPL and non-military types will be available as standard items.

Patch Cords

R.F. AND NON-R.F.



Few make as many patch cords as Johnson. Only Johnson has the capability to produce a line with solderless, crimp-on connections with superior strain relief, long life and high reliability at an affordable price.

Our patch cord line is complete. It includes hooks, stackable standard banana plugs, stackable miniature banana plugs, alligator clips, and plain wire ends. All feature crimp-on connections for strain relief and reliability, sure-grip tapered ends and extra flexible wire for long life.

We have an off-the-shelf selection of six standard colors and eight standard lengths. They're available through our network of over 200 stocking distributors.

Johnson also manufactures rugged R.F. patch cords made with RG-58, RG-59 or twisted pair cable which come in a wide range of connector styles including mini-hook grippers, dual stacking banana plugs, alligator clips and BNC connectors. You can choose from more than a dozen termination configurations and lengths from 12 inches to 5 feet.

Cable Assemblies

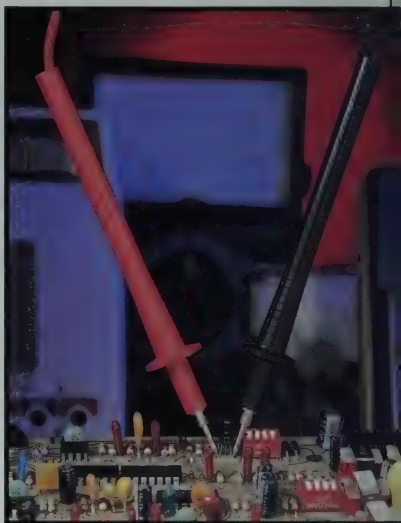
CUSTOM AND STANDARD



When it comes to your cable assembly needs, count on Johnson's years of experience in electronic circuit manufacturing. Johnson has been making various types of cable assemblies since the Company was founded in 1923. Many types of cable assemblies have been used in Johnson two-way radio equipment manufactured in Waseca. From the early amateur radio transmitter kits, through the development of two-way mobile communications to the modern high tech Airfone systems, each unit has needed wiring harnesses, DC power cables and R.F. cables. Each cable is assembled in the Waseca plant to critical specifications. And Johnson can do the same for you. From BNCs to various combinations of SMA, SMB, or SMC types, put Johnson performance to work for you in your cable assembly needs.

Test Leads

STYLES TO FIT MOST ANY METER



Johnson test leads feature solderless crimp connections to provide positive electrical contact and strain relief that withstands at least 20 lbs. pull. This gives you the most dependable test lead you can buy. The performance of all Johnson test leads equals or exceeds the performance of the test leads supplied with your original equipment and meet the most critical safety standards.

The test leads feature molded flanges to protect against shock, anti-slip ribs for a better grip and a threaded tip that accepts spade lugs, alligator clips and other accessories. The meter input ends of the test leads are available with shrouded or unshrouded plugs.

Ten different meter input styles are available from our network of over 200 Johnson distributors to fit most popular meters on the market today. These include:

- Standard Banana Plug • Right Angle Shrouded Standard Banana Jack • Right Angle Standard Banana Plug • Standard Tip Plug • Shrouded Standard Banana Plug • Right Angle Standard Tip Plug • Right Angle Standard Shrouded Banana Plug • Right Angle Miniature Banana Plug (Triplett 310 Type) • Shrouded Standard Banana Jack

Johnson test leads fit meters made by all leading instrument manufacturers. We are continually adding new listings. Call us for the latest information.

Hardware

PLUGS, JACKS, AND BINDING POSTS



The performance of Johnson plugs, jacks, and binding posts meets or exceeds the mechanical, electrical, and environmental specs required by similar MIL products.

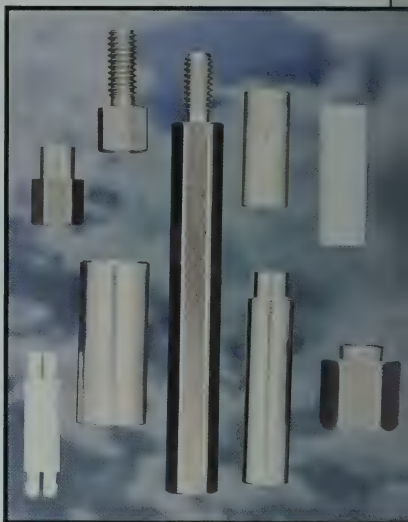
In addition to the standard parts, specials can be supplied to meet your particular application needs.

As standards, the following products are available:

- **Alligator Clips** • **Banana Jacks**—Miniature/Standard/Jumbo/Rib-Loc® • **Banana Plugs**—Miniature/Standard/Jumbo • **Binding Posts**—Miniature/Standard/Grounded/European/30 Amp • **Spacers**—Aluminum/Nickel Plated Brass/Stainless Steel/Nylon • **Terminals**—Rib-Loc® • **Test Jacks**—Horizontal/Vertical/Shielded • **Test Leads**—60° Tip/Needle Tip/1" Insulated Handles • **Tip Jacks**—Miniature/Standard/Rib-Loc®/Jack and Sleeve Assembly • **Tip Plugs**—Standard • **Test Strip Handle, PC Type**—Standard Card Type • **Hardware Prototyping Kits**—Banana Plugs, Banana Jacks, Binding Posts/Test Jacks, Tip Plugs, Tip Jacks • **Tools**—Staking/Crimping

Spacers

ALUMINUM, STAINLESS STEEL,
NICKEL PLATED BRASS AND NYLON



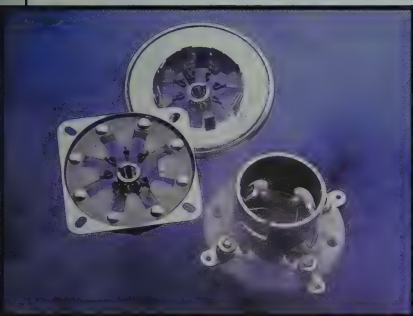
When you need reliable spacers, depend on Johnson to fill the gap. Johnson offers a complete line of spacers for economical mounting or stacking of printed circuit boards or other devices. Johnson spacers are available in aluminum, stainless steel, nickel plated brass and nylon.

Johnson has a full range of spacer mounting styles available: with clearance holes, threaded holes, combination stud and threaded holes, and swage mounts. Both round and hexagonal shapes are available in various lengths from .125" to 2". Special plating is also available.

If your needs can't be met by one of our hundreds of standard styles, Johnson can design and supply custom spacers.

Tube Sockets

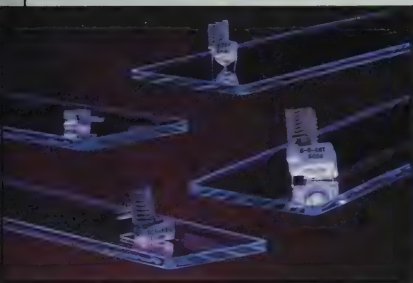
STANDARD, INDUSTRIAL AND MILITARY



Johnson manufactures tube sockets for high power applications including wafer, bayonet and air system types. Johnson tube sockets are designed to provide secure retention of the tube and positive, low resistance contact between tube pins and socket contacts. Johnson makes tube sockets in three types of materials and finishes—standard, industrial, and military.

Capacitors

MINIATURE AIR VARIABLE, AND TEFLON* TRIMMERS



Johnson manufactures a complete line of sub-miniature variable capacitors which feature high Q, low temperature coefficient and excellent stability. Air variable capacitors are available in 4 sizes up to a maximum capacitance of 34 pF. Low capacitance Teflon Trimmers are also available. Specials to meet your particular application needs can also be supplied. Contact Johnson for design and delivery assistance.

* Teflon is a registered trade name of Du Pont



We welcome the challenge! Johnson's manufacturing knowledge and skills are far-reaching. Pictured above are some examples of how we helped our customers with their design difficulties. There is a banana plug that mounts to a circuit board with a screw for a well-known instrumentation manufacturer. There is a 75 Ohm SMB type coaxial connector for a major telecommunications company. A six "PAK" connector (six position) for a major customer's power supply connection on a PC board. And a chip carrier socket for a well known communications company. Hardware, R.F. connectors, spacers or special sockets—Johnson can do it all for you.

Custom Manufacturing



No electronic design or assembly project is beyond consideration for Johnson's expert staff. Our custom manufacturing experience is extensive in circuit board assembly and related areas. We've recently custom designed a battery connector and a tilt switch for a major energy management company. Both components solved a design problem that no other standard part could solve. Johnson has done custom manufacturing and assembly work for many other nationally and internationally known companies.

If you have a custom manufacturing need, call us at 1-800-247-8256.



*E.F. Johnson
Corporate
Headquarters*



*E.F. Johnson
Operations
Center*

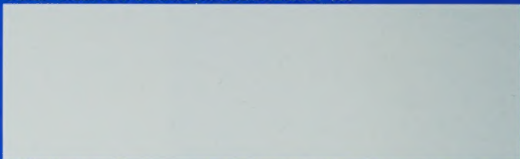
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OVER **65 YEARS** IN ELECTRONICS



Manufacturing and engineering facility in Waseca, Minnesota



Corporate headquarters in Minneapolis, Minnesota area

The E.F. Johnson Company started business on October 10, 1923, as a partnership of Edgar F. and Ethel Johnson. This partnership was joined by Marvin Johnson in 1925 and Everett Johnson in 1941. The Company was incorporated in 1953, publicly traded its stock in 1964, became listed on the New York Stock Exchange in 1976, and is currently a wholly owned subsidiary of Diversified Energies, Inc. (DEI on the NYSE).

Originally, E.F. Johnson focused on retail mail order sales of component parts to early commercial broadcast stations and amateur "ham" radio operators. On the local level, Johnson sold radio broadcast receivers in the early days of commercial radio. Inductors of all sizes became the first important product group. Other components that made up the early Johnson product line included porcelain insulators, large vacuum tube sockets, plug and jack type connectors, variable capacitors, telegraph keys, pilot lights and beam antenna rotators. Many of these were the forerunners of the strong and extensive electronic component line still

manufactured and marketed today. Special components and transmitters for military use were manufactured during World War II. E.F. Johnson became the first company to manufacture complete amateur transmitters, the Viking I in 1949, followed by many others.

The Fifties and Sixties saw the development of the two-way radio market. Johnson was there with high and low band units. The Seventies brought CB and the mass expansion of affordable two-way communications to the public. The Eighties meant new challenges for Johnson. Johnson design teams helped develop Cellular mobiletelephone and Airfone, which enables passengers to talk directly from a jet airliner to someone on the ground via the telephone system.

From a corner of a woodworking shop with two employees, the E.F. Johnson Company has grown to over 1,200 employees in a state-of-the-art manufacturing and engineering facility in Waseca, Minnesota. Corporate headquarters are located in the Minneapolis, Minnesota area.



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